THE

ARCHITECTURAL MAGAZINE.

DECEMBER, 1834.

ORIGINAL COMMUNICATIONS.

ART. I. *On those Principles of Composition, in Architecture, which are common to all the Fine Arts.* By the CONDUCTOR. Sect. 4. *Forms, Lines, Lights, Shades, and Colours, considered with reference to Variety, Intricacy, and Harmony.*

VARIETY is the next beauty that is sought for after Symmetry. To produce variety, it is commonly imagined that a great number of things of different kinds are required to be brought together, or that a great number of different kinds of qualities must exist in the same thing. This, however, is to confound variety with diversity. Diversity requires, for its production, a number of things, or of qualities, different in themselves; variety requires only the same thing, or the same quality, placed in different points of view. An almost endless variety may be produced by the position of objects of any one form; for example, by grouping cubes or globes on a flat surface: but diversity would require not only the same variation of position, that is to say, the same grouping, but a difference in the forms, or in the colours, or in both, of the articles grouped or distributed. The Contrast in the Position of objects of the same kind is the cause, or fundamental principle, of Variety; and the Contrast in the Forms or other qualities of the articles brought together is the cause, or fundamental principle, of Diversity.

Intricacy may be described as variety rendered complex, or intricate, by the number of the parts, and by the necessary concealment from the eye of many of them. A small number of cubes may be grouped on the ground, in threes, fours, and fives, in such contrasted positions as to produce considerable variety; but, to render this variety intricate, a considerable number more cubes would be necessary. Instead of groups consisting only of three, four, or five cubes each, such an additional number would be required as would be sufficient to conceal partially one or more cubes in each group. Thus, as, in variety, the cubes might all be placed side by side, so, in intricacy, one or more of the cubes must be placed above one or more of the others. The concealment thus effected must, however, never be so complete as to render a discovery hopeless; because the chief property of

intricacy is to engage the eye and the mind, by exciting the curiosity in search of what is unseen, but is yet apparently discoverable. Contrast and Concealment, therefore, are the principles of Intricacy.

To produce Harmony, objects require not only to be contrasted, as in Variety, and partially concealed, as in Intricacy, but to be opposed, as in Diversity. In short, Harmony in composition, whether in Language, Music, Poetry, Painting, or Architecture, admits of the use (in the sense of art) of every property possessed by the materials of the art in which the composition is produced. By the phrase "in the sense of art," we intend to limit the properties of the materials employed to those which are suitable to the art in question: for example, in painting, the material employed is colour; but when we state that every property of colour (the material of painting) may be made use of in harmony, it is not to be understood that we refer to colour either with regard to its chemical or its mechanical properties. From the contrasted position of objects springs Variety; from contrast in position combined with partial concealment, Intricacy; from contrast in form, Diversity; and from all of these combined, Harmony.

In a style of writing which aims at nothing more than correctness and variety of expression, no violent or abrupt transitions from one mode of diction to another; from the prosaic to the poetic style, or from the grave to the gay, for example; are admissible. In a harmonious style, on the contrary, the most sudden transitions of diction and of language are not only admissible, but essential, in order to give that degree of force which renders the effect of harmony so much more intense than that of mere variety. In music, melody may be considered as analogous to variety in written composition, since it consists of simple sounds arranged so as to produce variety by their position, and by the duration of the intervals which occur between them, and does not admit of either violent contrasts or discords. Harmony, however, requires something more than a mere variation of position and intervals; it requires a combination of sounds, according to given principles, to form concords or discords; and the occasional introduction of these discords is essential to the perfection of the composition. What is it that constitutes the difference between the melodious and smoothly flowing verses of Pope, and the harmonious forcible poetic compositions of Dryden, but the violent transitions, and bold and sudden contrasts, in the compositions of the latter poet? Claude's landscapes are varied and beautiful, for the same reasons as Pope's poetry; and the landscapes of Salvator Rosa are bold, forcible, and harmonious, on the same principle as Dryden's

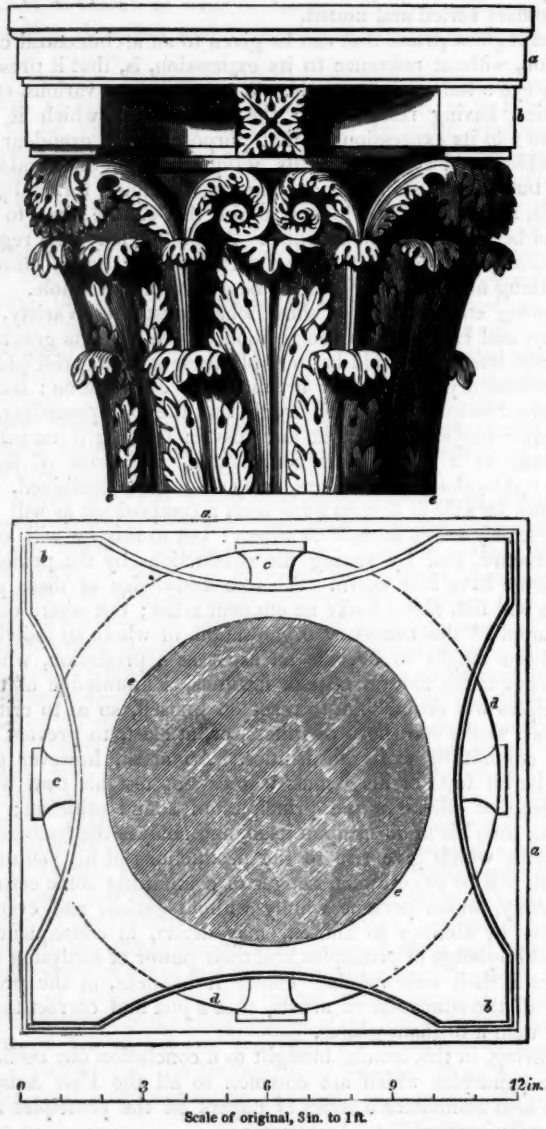
poetry; viz., the employment of qualities violently opposed, along with others varied and united.

The highest praise that can be given to an architectural composition, without reference to its expression, is, that it presents to the eye a harmonious whole. It may possess various other qualities, having reference to the purpose for which it was erected; to its expression of that purpose, or of grandeur; to its architectural style; or to its antiquity, strength, durability, &c.: but, viewed simply as a composition of lines, forms, lights, shades, and colours, the highest praise that can be given to it is that of being a harmonious whole. A building may be a regular whole, a symmetrical whole, or a varied whole; but it must be something more than all these to be a harmonious whole.

Having endeavoured to show what constitutes Variety, Intricacy, and Harmony in composition, in the fine arts generally, our next business should be to apply these general principles to the elementary qualities of architectural composition: but no one who has understood this article and the four preceding, on the same subject, can be at any loss in forming a varied, an intricate, or a harmonious composition, by means of forms, lines, lights, shades, or colours, or by all of these combined. He may not be able at first to form such a composition as will perfectly satisfy either himself or others: but to this he will arrive by practice, and by testing his productions by the principles which we have laid down. A mere knowledge of these principles will not, alone, make an eminent artist; but where nature has supplied the necessary organisation, or where an individual has been taught to become an artist as a profession, without reference to his natural taste or faculties, a knowledge of these principles will enable him to react on himself, so as to criticise his own works and those of others, or, at least, to prevent him from committing gross absurdities. An artist, however great may be his taste or his genius, who cannot test his own works or those of others by the principles of sound criticism; who cannot turn his mind in upon itself, and analyse the feelings and emotions which give rise to the productions of his pen or his pencil, will be in continual danger of committing some error or absurdity, which persons wholly without genius, and even far inferior in abilities to himself, may detect, in consequence of their knowledge of principles, and their power of analysing what passes in their own minds. Hence it happens, in the present state of the education of artists, that a just and correct taste is safer than a brilliant genius.

Having, in this article, brought to a conclusion our outline of those principles which are common to all the Fine Arts, we shall next commence a series of papers on the principles more especially applicable to Architecture.

184



Scale of original, 3 in. to 1 ft.

a a, Abacus; *b b*, horns; *c c*, rosettes; *d d*, lip of vase; *e e*, upper diameter of column.

ART. II. *Notice of a remarkable Corinthian Capital in the Vatican.* By G. WIGHTWICK, Esq., Architect.

IT was my chief occupation, while a student at Rome, to glean whatever architectural rarities I could find in the gallery of the Vatican; and I have now by me many drawings, from exquisite examples of the antique, for the first time (I believe) geometrically delineated to accurate measurement. They consist of vases, altars, candelabra, two very curious marble chairs, and a remarkable Corinthian capital, the plan and elevation of which (*fig.* 184.) are herewith forwarded for your publication, should you coincide in my opinion of its worth.

You will observe that its chief peculiarity consists in the square abacus, and the omission of the volutes. The horns curve inward, as usual; but, instead of the one diagonal, they exhibit two square faces, parallel with the right angle of the abacus. The lip of the vase shows itself with considerable prominence, and the central rosette rests upon it, entirely protected above by the abacus, and beautifully relieved by shadows on each side.

It has often struck me that the curved abacus of the Corinthian was particularly unsuited to very small circular porticoes, owing to the too strongly marked opposition between the convexity of the entablature and the concavity of the abacus. This defect is obviously avoided by the square abacus of my example, which gives also a simplicity to the capital, and recommends it as peculiarly fitted to porticoes (whether circular or square) where a foliated capital is desired, without the orthodox but expensive accompaniments of a fluted shaft and modillion cornice.

I have had it accurately modelled, and cleverly executed in Portland stone, by Messrs. Andrews and Greenham of Plymouth; and the fact of its having been much admired by all who have seen it, is the motive for this communication.

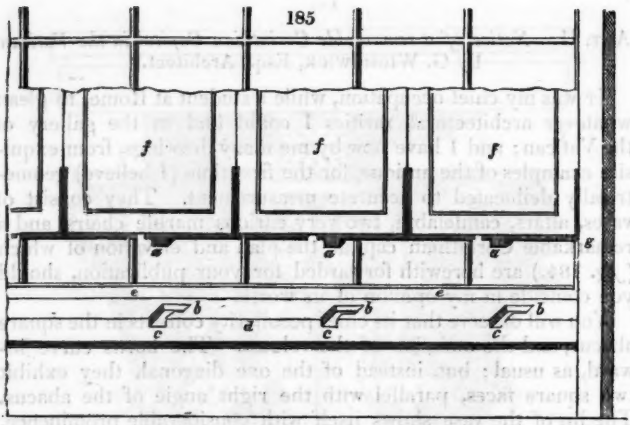
Such of your travelling readers as may chance to come near Plymouth, may see this curious example practically illustrated in the residence of H. Collins Splatt, Esq., at Brixton.

Plymouth, September, 1834.

ART. III. *A Method of securing Outside Shutters for Shop Windows.* By Mr. SAUL.

HAVING been applied to for a plan for securing outside shop front shutters, the following is the method I have given, which may be of interest to the readers of the *Architectural Magazine*, as it differs from any that I have seen published.

The window is 8 ft. wide and 7 ft. high. There are fourteen shutters, and only one bolt is required in securing the whole;



this bolt is fixed on the seventh shutter, but it might be fixed on any of the others except the first or last. Each shutter has attached to the corner plate a stud (*a a*, in *fig.* 185.), which slides back into the groove in the window sill at *b b*; so that, when the shutter to which the bolt is affixed is put up, it secures the whole, as the others are prevented from moving back to *c c*. The window sill (*d*) has got a brass plate fixed upon its upper surface, to prevent the studs from breaking out. The bottom rail of the window is represented by *e e*; and the window shutters (*f f*) are raised up, to show more clearly the studs and the grooves in which they slide. When the stud enters at *c*, and is thence moved to *b*, the shutter comes close up to the style *g*, so that it cannot be taken out until it is moved backwards the width of the stud. The upper ends of the shutters slide in a groove the whole way.

Sulyard Street, Lancaster, July 28. 1834.

ART. IV. *An Account of the Origin and Progress of heating Hothouses and other Buildings by the Application and Circulation of Hot Water, instead of by Fuel or Steam.* By GEORGE COTTAM, Esq. F.H.S. Z.S., Associate Member of the Institution of Civil Engineers.

(*Continued from* p. 176.)

WE shall now proceed to give a chronological detail of every discovery that has taken place in regard to heating through the medium of hot water introduced into metal pipes, commencing with the apparatus of M. Bonnemain, who appears to have been the earliest practiser of the useful and efficient method adverted

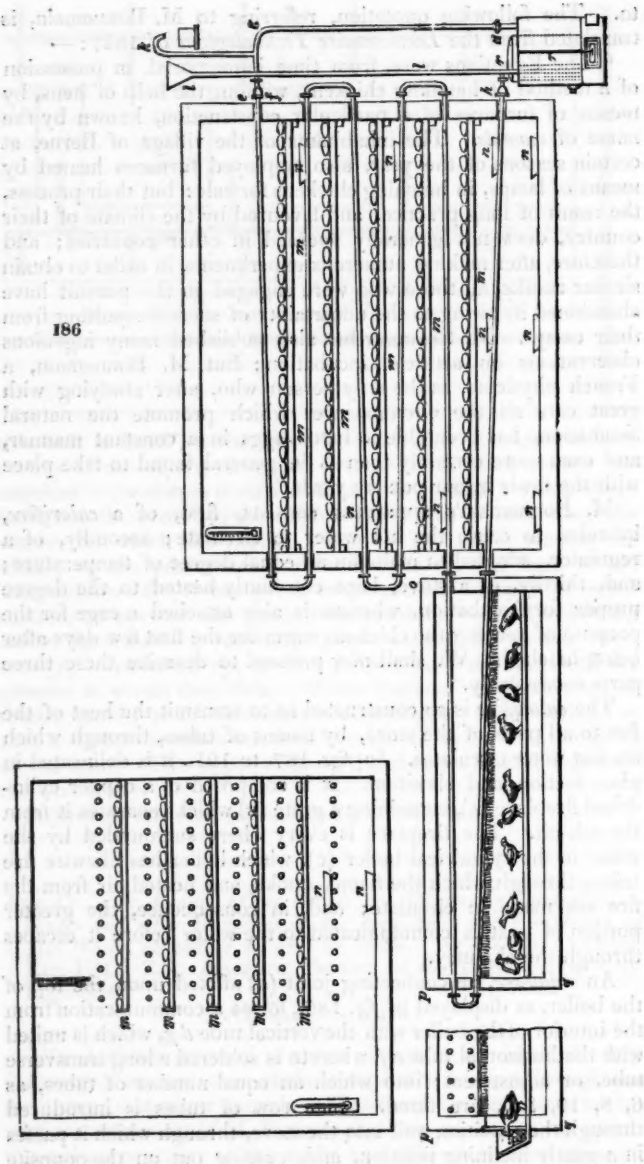
to. The following quotation, referring to M. Bonnemain, is translated from the *Dictionnaire Technologique* of 1827:—

"The Egyptians were, from time immemorial, in possession of a method of hatching chickens, without the help of hens, by means of furnaces of a particular construction, known by the name of *mamals*. The inhabitants of the village of Berne, at certain seasons of the year, also employed furnaces heated by means of lamps, in hatching chickens for sale: but their process, the result of long practice, and favoured by the climate of their country, does not generally succeed in other countries; and therefore, after making numerous experiments, in order to obtain similar results, all those who were engaged in the pursuit have abandoned it, owing to the uncertainty of success resulting from their essays. M. Reaumur has also published many ingenious observations on artificial incubation; but M. Bonnemain, a French physician, is the only person who, after studying with great care all the circumstances which promote the natural incubation, has been able to hatch eggs in a constant manner, and even more certainly than is in general found to take place with the fowls in our poultry yards."

M. Bonnemain's apparatus consists, first, of a *calorifère*, intended to cause the hot water to circulate; secondly, of a regulator, adapted to maintain an equal degree of temperature; and, thirdly, of a stove, kept constantly heated to the degree proper for incubation, whereto is also attached a cage for the purpose of keeping the chickens warm for the first few days after being hatched. We shall now proceed to describe these three parts successively.

The *calorifère* is so constructed as to transmit the heat of the fire to all parts of the stove, by means of tubes, through which the hot water circulates. In *figs.* 187. to 191., it is delineated in plan, section, and elevation. It is composed of a copper cylindrical fireplace (A), containing a grate (B) which separates it from the ash-pit. The fireplace is every where surrounded by the water in the cylindrical boiler (C), which boiler has likewise fire tubes, through which the flame, smoke, and heated air from the fire are made to circulate; and, in consequence, the greater portion of heat is communicated to the water before it escapes through the chimney.

An *adjutage*, or connecting joint (*d*) affixed upon the top of the boiler, as displayed in *fig.* 186., forms a communication from the interior of the boiler with the vertical tube *d g*, which is united with the horizontal tube *e f*, whereto is soldered a long transverse tube, or adjustment; into which an equal number of tubes, as 6, 8, 10, &c., are fitted. This row of tubes is introduced through the partition wall into the stove, through which it passes in a gently inclining position, and, passing out on the opposite



186

side, the same tubes are curved, and again enter the stove about 8 in. or 9 in. below; thence passing through it, they again traverse the partition wall, and are then bent and passed through the stove, and so on two or three times repeatedly: the last two times, however, M. Bonnemain caused them equally to traverse a kind of cage (*o p q*), having a sheepskin with the wool adhering to it suspended therein, under which the young birds could nestle and keep themselves warm. The row of tubes was then once more united in another transversal tube (*h*), at the bottom of the stove, to which was adapted another tube, descending to the bottom of the boiler on one side, and also above the top of the boiler, thus rendered convenient for filling and emptying the boiler with water. In such case, however, it is requisite to interpose between the mouth of the tube and the bottom of the boiler a capsule of copper, affixed by three branches, so that the heated water should not be directed towards this orifice, and thereby abate in its action of boiling. It is no less desirable to solder to this tube, along the whole of that portion passing through the water, a double envelope full of air, so as to prevent the descending water from becoming re-heated previously to passing into the boiler, whereby the force of its circulation is diminished. An open tube (*k*), raised above the highest point of the first-mentioned tube (*g*), serves to allow the air contained in the water to escape; the other tube (*l*), fitted to the basement of the boiler, as previously specified, but which is elevated above the level of the highest circulating tubes, has a funnel at the top whereby the boiler is to be filled with water. For the purpose of better comprehending the construction of the *calorifère*, we shall now proceed to give a detailed explanation of the figures representing this apparatus, the same letters of reference indicating the correspondent parts in all of them.

187

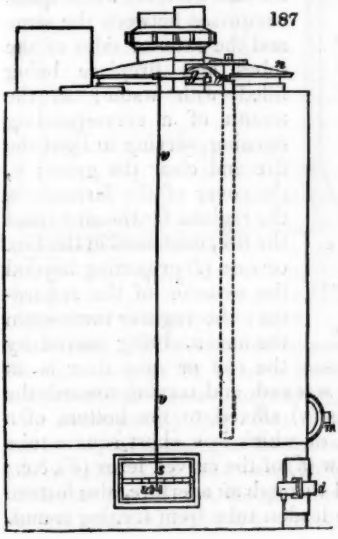
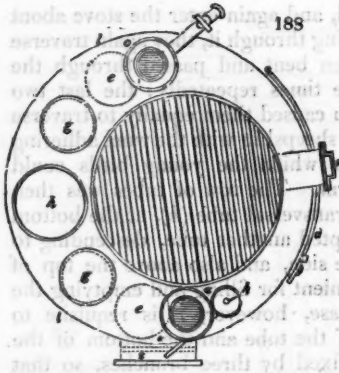
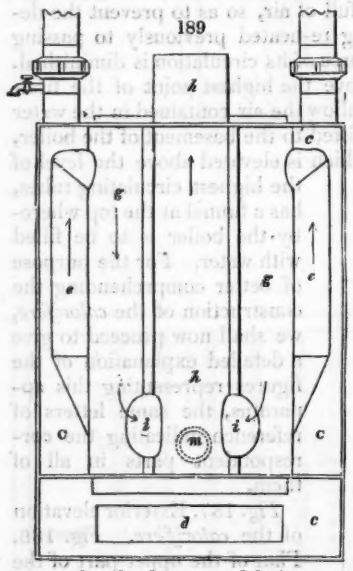


Fig. 187. Exterior elevation of the *calorifère*. *Fig.* 188. Plan of the upper part of the same having its cover removed. *Fig.* 189. Vertical section of the same, displaying the flues or tubes for the products of the combustion to circulate through. *Fig.* 190. A plan



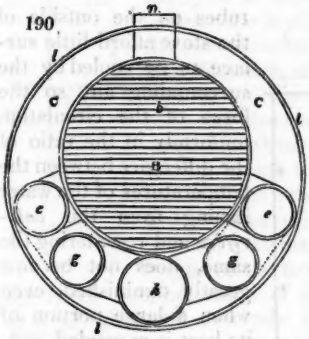
taken at the level of the grate. *Fig.* 191. A section of the furnace and its chimney. *Fig.* 192. Side elevation of the regulator, and section of the tube enclosing the iron rod. *Fig.* 193. Birdseye view of the dial and levers of the regulator. *Fig.* 194. Front view of the register door. *Fig.* 195. A section of the same.

The last four figures are drawn upon a scale three times larger than the former. *a*, The fireplace; *b*, the grate; *c*, the ash pit; *d*, the door of the ash pit; *e e*, tubes whereby the smoke, &c., ascend from the fireplace through the aperture *f*; *g g*, other tubes, down which the smoke, &c., pass from



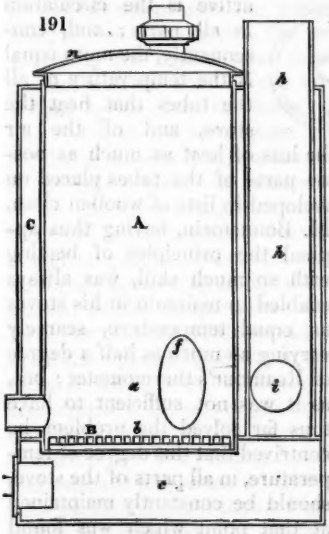
the tubes *e e*; *h*, a larger tube, serving as a chimney to convey away the products of the combustion, which enter through the tubes *i i*, and escape by means of the tubes *g g*; *l*, the exterior case of the *calorifère*, the whole space comprised between the same and the exterior sides of the tubes and fireplace being filled with water; *m*, the mouth of a corresponding opening, serving to light the fire and clear the grate; *n*, the cover of the furnace; *s*, the register for the air to feed the fire, contained in the box or case (*t*) projecting beyond the exterior of the apparatus; the register turns upon the axis *u*, being moved by the rod or wire *v*: *x* is an iron rod; the lower end being screwed, and turning towards the left, in a female screw of brass (*y*) affixed to the bottom of a leaden tube, at the upper part of which is a short square tube of brass (*z*) acting upon the claw (*d*) of the curved lever (*b'*), &c.; while the square tube is guided through an aperture, also formed square, in order to prevent the leaden tube from turning round.

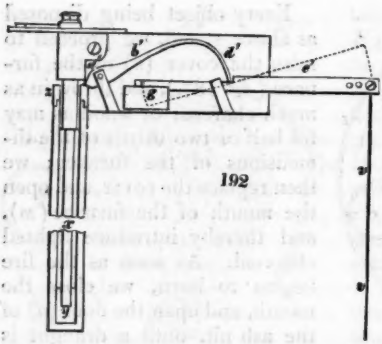
190



Every object being disposed as above stated, we proceed to raise the cover (*n*) of the furnace (*fig.* 187.), and throw in as much charcoal or wood as may fill half or two thirds of the dimensions of the furnace; we then replace the cover, and open the mouth of the furnace (*m*), and thereby introduce lighted charcoal. As soon as the fire begins to burn, we close the mouth, and open the door (*d*) of the ash pit, until a draught is established, when we close all the openings. The products of the combustion, which are disengaged from the fire, are then introduced, at the opening *f*, into the two ascending tubes *e e*; they then ascend the tubes *g g*, passing through the large tube *h h*, and thence to the chimney. During the passage of the gaseous products of the combustion, they communicate to the water in the boiler a great portion of their heat, and finally enter the chimney at a temperature but little elevated. It may readily be imagined that the water heated in the *calorifère*, rising by means of its specific levity through the tube *d*, *fig.* 186., from the summit of the boiler, creates a progressive movement throughout all the tubes, which again return to the boiler a corresponding quantity of water through the tube *r*, which is precipitated downwards to its lower part. This circulatory movement, once established, continues as long as the water is heated in the *calorifère*, because the temperature is never equal throughout all parts of the apparatus. We consequently infer that a perfect equality of temperature never can exist, owing to the continued loss of heat escaping from the exterior of all the tubes. In the mean time, the temperature of the air enclosed in the stove varies but little from that of the several tubes whereby it is traversed; and as the curves of the

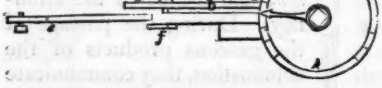
191





192

tubes on the outside of the stove afford little surface to be cooled by the surrounding air, so the force of the circulation uniformly in the ratio of the difference between the temperatures of the water issuing from the *calorifère* and re-entering the same, does not become greatly diminished, even when a large portion of its heat is expended, outside of the stove, in maintaining a gentle heat in the cage (*o p q*) adjoining. We therefore find, the more the water is cooled passing through the last circumvolutions of the tubes, the more active is the circulation in all parts; and, consequently, the more equal is the temperature of all the tubes that heat the stove, and of the air within it. Indeed, to prevent the loss of heat as much as possible, the *calorifère*, and all those parts of the tubes placed on the exterior of the stove, are enveloped in lists of woollen cloth.



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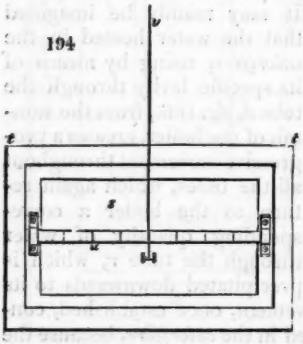
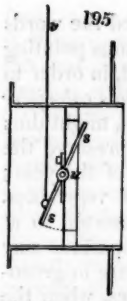


194

M. Bonnemain, having thus applied the principles of heating with so much skill, was always enabled to maintain in his stoves an equal temperature, scarcely varying so much as half a degree of Reaumur's thermometer; but, as it was not sufficient to have thus far solved the problem, he contrived that this degree of temperature, in all parts of the stove, should be constantly maintained at that point which was found most favourable for promoting incubation. It was by means of the following apparatus, or regulator of the fire, that he attained this desirable object.

The action of this *regulator* is founded on the unequal dilatation of different metals by heat. A rod of iron (*x*, *fig.* 192.) screwed, as above mentioned, at its lower extremity, is united to a female screw of brass (*y*), which is enclosed within a tube of lead termi-



195

nating at its upper end in a ring of brass (*z*). The leaden tube is plunged into the water contained in the *calorifère*, by the side of one of the tubes (*g*). The dilatation of lead being greater than that of iron, at an equal degree of temperature, and the rod being also enclosed within the tube, it is heated much less than the tube; and, when the temperature is raised to the degree required, the lengthening of the tube brings the ring (*z*) into contact with the claw (*a'*) at the shorter end of the bent lever (*a' b' d'*); but when the slightest increase of heat again lengthens the tube, the ring (*z*) raises the claw of the lever, but, by reason of the greater length of its opposite arm (*d*) that end descends much more. This movement is communicated near to the axis of a balanced lever (*e*), placed below the end of the former one, and thereby greatly increases the motion of the lever *e'*, which movement is forthwith transmitted by the iron wire (*v*) to the register (*s*), which diminishes or entirely suppresses the access of air to the fire. The combustion then abates, and, the temperature falling a little in consequence, the leaden tube shortens and is disengaged from its contact with the claw of the lever (*a' b' d'*); and the counterweight (*g*) fixed in the lever (*e*) causes the other extremity to rise and open the air register (*s*), thus affording a wide passage for the admission of air, when the combustion acquires a renewal of activity. Hence it becomes obvious that, the temperature of the *calorifère* being regulated, the tubes circulating through the stove must constantly dispense the same quantum of heat for any given period. Nevertheless, this condition did not suffice for uniformly preserving an equal temperature in the stove, in consequence of the temperature of the open air so greatly varying. In order to counterbalance this influence, M. Bonnemain fitted, upon the upper end of the iron rod that supports the regulating tube, an index, contrived in such a manner as to turn the rod, and, consequently, the screw (*y*) at its lower end, so as to lower or raise the leaden tube. In the former case, the claw at the shorter end of the lever (*a' b' d'*) falling from it causes the air register to open, and raise the temperature higher than the dilatation of the leaden tube permitted; and thus a higher temperature is obtained, and regularly continued. If, on the contrary, the tube be raised by turning the index in an opposite direction, the air register affords a less opening, whereby a temperature considerably lower is produced. Hence we find that it is easy to determine, *à priori*, the degree of temperature which we would communicate to the water circulated by means of the *calorifère* through the rows of tubes in the stove. In order to facilitate the means of regulating his *calorifère*, M. Bonnemain caused divisions to be engraved

upon a dial plate beneath the index, and inscribed the words "*stronger heat*" or "*less heat*" upon this plate; thus pointing out the direction in which the index should be turned, in order to produce the one or the other effect. M. Bonnemain's *calorifère* and regulator, by means of appropriate modifications, might thus be usefully applied under garden beds, so as to preserve the temperature expedient for vegetation at all seasons of the year; or, in producing an abundance of early crops of vegetables. Successful experiments of this description were resorted to at the *Jardin des Plantes* at Paris. This ingenious apparatus may equally be applied to maintain the proper temperature in greenhouses, apartments, and more particularly in stoves, when the alcoholic or acetic fermentations are to be produced, or the crystallisation of sugarcandy, tartaric acid, &c., is to be effected.

When it is requisite to hatch chickens, &c., in the stove previously described, a fire should be kindled in the *calorifère*, and by means of the regulator the degree of heat fitted to produce incubation is obtained in the stove. The eggs must then be ranged near each other upon the shelves with borders to them (*m m*, *fig.* 186.) fixed under each row of tubes. It is expedient not to cover, during the first day, more than the twentieth portion of the superficies of the shelves, and to add every day, during twenty days, an equal number of eggs, so that, on the twenty-first day, the quantity of eggs first deposited will be for the major part hatched, and every day nearly the same number of chickens will be obtained; which, however, may be regulated by the demand at any particular season of the year.

During the first days of incubation, whether natural or artificial, the small portion of water contained within the substance of the egg evaporates through the pores in the shell: this is replaced by a small quantity of air, which is necessary to support the respiration of the chicken. But as the atmospheric air which surrounds the eggs in the stove at that degree of temperature is either completely dry, or but little humid, so the chicken would greatly suffer, or finally perish, from this kind of desiccation. The aqueous vapour which exhales from the breathing of the old fowls while hatching, in some degree prevents this ill effect; but, nevertheless, in dry seasons, this vapour is hardly sufficient; and thus, in order that the eggs may be better hatched in the dry seasons, the hens cover them with the earth of the floor of the granary. In artificial incubation, to keep the air in the stove constantly humid, they place in it flat vessels, such as plates (*n n*), for example, filled with water. When the chickens are hatched, they are removed from the stove and carried to the cage (*o p*), where they are fed with millet. There are also partitions in the cage, to separate the chickens as they are hatched each day, in order to modify their nourishment agreeably to their age. Arti-

ficial incubation is exceedingly useful in furnishing young fowls at those seasons when the hens will not sit; and in some situations to produce, or, as we may say, to manufacture, a great number of fowls in a small space.

Prior to the Revolution, M. Bonnemain had set on foot a very lucrative establishment, whereby the court of France and the various markets of Paris were abundantly supplied with poultry at all seasons, and, consequently, at those periods of the year when the farmers had not the means of furnishing that delicate commodity. The disastrous effects of the revolution that subsequently took place occasioned the abandonment of this useful institution, and thus the French capital was deprived of the beneficial results of the discovery. M. Bonnemain, however, after a lapse of time, renewed his project; but as sufficient funds were wanting to direct his plans with that assiduous care he had previously bestowed upon them, the results were not so advantageous as to warrant their continuance, and the attempt was thus ultimately abandoned.

ART. V. *Notice of an improved Lamp Post in Use in Edinburgh.* By JOHN ROBISON, Esq. Sec. R.S.E. &c.

THE lamp pillars in use in this city are, I think, worthy of your notice: they, in the same way as the mile marks (p. 78.), combine durability, effectiveness, and economy, with a graceful outline. I had to contend with much prejudice and opposition in getting them introduced; but they have now made their way into some twenty or thirty different places, including New South Wales. Previously to their introduction here, it was held as an axiom that square lanterns were better fitted for gas lights than globes, and that their maintenance was less expensive. Experience has proved both positions to be false, as, by providing, in the construction of the top, a chimney for the discharge of the watery vapour of combustion, it is found that the globes remain undimmed in all weathers, and protect the flame from being blown out when the wind extinguishes that in the lanterns. The expense of repairing damaged lanterns is also found to exceed that of renewing broken globes, in a very unexpected proportion. The lamp pillars serve the purpose of indicating the names of the streets, which are cast in relief on the bar against which the lamplighter's ladder is reared, and are painted white.

The lamp pillar consists of two pieces of cast iron, and a frame of wrought iron for the support of the glass. *Fig.* 196. is a view of this lamp pillar, with all its parts complete. *Fig.* 197. is a section of the same, showing the construction of the parts within.

In erecting the pillar, the base (*a*) is set on the stone by the assistance of a spirit level, and the buts (*b b*) are bedded into the

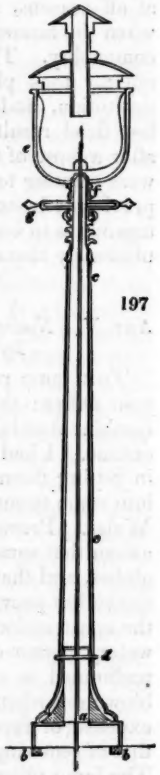
stone, level with the pavement, and secured by lead. The shaft (*c c*, previously adjusted to its base at the foundery) is then slipped on it, and the key driven through as at *d*, which confines the shaft and the base firmly together.

The lamp iron, or frame (*e*), is attached to the head of the pillar; and is secured, upon the same principle, by two screwed pins at *f*. The cross bar (*g*) for the lamplighter's ladder to be placed against, is made flat on the face, and a little thicker below than above, to allow of the light striking on its surface, on which the names of the streets, &c., in which the lamps are to be placed is to be cast in relief on both sides. The pillars are to be painted of a dark colour, and the letters made white.

196

The glasses are open at bottom, with an inch and a half aperture as a vent hole; but, in order to prevent the wind from disturbing the flame, a disc of tinned iron slides on the gas pipes to a regulated distance from the opening.

The covers are constructed as shown in the figures, having a chimney in the centre, for the purpose of maintaining a current of air through the interior of the lamp; and to carry off the watery vapour generated by the combustion of the gas, which would otherwise condense on the surface of the glass, and obscure the light.



197

The experience of last winter has shown that this construction of lamp post possesses an important advantage over those previously used here. It throws very little shadow beyond its own base; the lights burn steadily in the most stormy weather; the casualties to the glass have been much diminished; and the difficulty of climbing the pillar (from the absence of projecting ornaments) has put a stop to the stealing of the brasswork in the burners. The dust, likewise, from finding no lodgment, is washed away by every shower.

Edinburgh, February, 1833.

REVIEWS.

ART. I. *A Treatise on Isometrical Drawing as applied to Geological and Mining Plans, Picturesque Delineations of Ornamental Grounds, Perspective Views and Working Plans of Buildings and Machinery, and to General Purposes of Civil Engineering; with Details of Improved Methods of Preserving Plans and Records of Subterranean Operations in Mining Districts.* By T. Sopwith, Land and Mine Surveyor, Member of the Institution of Civil Engineers, Author of "Geological Sections of Mines," "Account of Mining Districts," &c. With thirty-four copperplate engravings. 8vo, pp. 239. London, 1834.

IN his preface, the author informs us that his object is "to elucidate the principles of isometrical projection, and to explain its application to a variety of useful purposes." After stating its suitableness for geological maps and plans, and sections of mines of every description, he adds, that "for plans and elevations of buildings, and for working details of machinery, isometrical drawing possesses such decided advantages, that a more extended knowledge of its principles cannot fail to insure its almost universal application, in preference to every mode of perspective drawing. In representing gardens and pleasure-grounds, not only a correct plan of the mansion, and the various walks, lawns, or plantations, can be shown, but also the height and pictorial aspect of the trees, shrubs, green-houses, &c. For this and various other purposes, isometrical drawing will be found an agreeable occupation to amateur artists, and especially to ladies, who are thus enabled to combine the beauties of landscape, architectural, and flower painting, with useful and correct delineations of pleasure-grounds, houses, gardens, or other objects." (p. vii.)

Our readers who are aware of the extent to which we have used isometrical projection in our *Encyclopædia of Cottage Architecture*, in our *Illustrations of Landscape-Gardening* (a new series of which will speedily appear), and in the *Gardener's Magazine*, will not be surprised at our entirely agreeing with Mr. Sopwith in recommending isometrical drawing as by far the best kind for general use in architecture, land-surveying, and landscape-gardening. In truth, this description of drawing has been employed in these three departments of delineation from the earliest period; and the only difference between the practice recommended by Professor Farish, Mr. Joplin, and Mr. Sopwith, and that formerly practised by surveyors and architects, is, that the modern practice is founded on principles and reduced to a system, which the other was not. In the British Museum is a work, by the architect and engineer Caus, entitled *Hortus Palatinus*, printed at Frankfort in the year 1620, in which a number of the plates, both of the garden and the palace, are in tolerably correct isometrical drawing; and we have seen a number of drawings by old English architects in the same style. With regard to maps of estates, the old mode of giving the elevations of the trees, fences, gates, houses, &c., is nothing more than isometrical projection, made by the eye without any knowledge of its principles. It thus appears that this description of drawing is the most ancient and natural of any, as well as the most useful.

On the subject of its utility in architecture, Mr. Peter Nicholson, one of the first practical mathematicians of the age, has the following remarks, which may be considered conclusive in its favour:—"Isometrical projection combines the uses of perspective and geometrical drawings of plans, elevations, and sections. It is of equal utility with perspective in showing how the parts of a design are connected together, and has this advantage over it, in exhibiting the measures of those parts. Much study is required, in order to carry a complex design which is represented by geometrical drawings into execution, from its being necessary to represent the object by as many separate drawings as it has faces. Hence the advantage which isometrical projection has over

geometrical drawings, in uniting all the faces of an object; and, consequently, representing the object itself by one drawing."

Having, as we conceive, shown the great value of this description of drawing to the architect, surveyor, and engineer, we have only at present room strongly to recommend Mr. Sopwith's book as by far the best, and indeed the only complete, work that has yet appeared on the subject. Every part of it is rendered easily comprehensible, even by a person who knows scarcely any thing of geometry; and every mode of the application of isometrical drawing is beautifully illustrated by engravings. Mr. Sopwith shows, and indeed it is self-evident, that the term isometrical perspective is incorrect; isometrical projection is the true designation, from which the practice of isometrical drawing is deduced. This isometrical drawing consists in a certain proportional enlargement of some parts of the projection, in order that both the geometrical ground plan and the isometrical elevation may be measured by the same scale. It is an important point, therefore, for such of our readers as wish to make themselves acquainted with the difference between isometrical projection and isometrical drawing, and to bear it in mind afterwards. We shall speak of the suitableness of this mode of drawing for gardening purposes in our *Gardener's Magazine*.

ART. II. *Working Ornaments and Forms, full Size, and in various Styles, for the Use of the Cabinet Manufacturer, Chair and Sofa Maker, Carver, and Turner; consisting of entirely new Designs, in which great Study has been bestowed on causing a Display without much Expense in Material or Labour.* By T. King, author of "The Modern Style of Cabinet Work, exemplified in New Designs;" "Designs for Carving and Gilding," &c. &c. Parts I., II., and III. Folio. London, 1833. 10*s.* each.

THIS is a most beautiful work, and one that will be of the greatest use to the practical man, especially to him who lives in the country. The designs show considerable originality, and, as it appears to us, good taste; and they are on such a large scale that no workman can have any difficulty in carrying them into execution. Each part is complete in itself.

Part i. contains, supports of sideboard tables; a termination of a sideboard back; sideboards; rosettes and studs for turning and carving; a loo table; card and loo table feet; pilasters and columns; commodes; a flower-stand; and a support for a card table.

Part ii. contains, centre ornaments for friezes; stump feet; legs for tables; brackets; pillar supports for commode shelves; cantilever supports for commode shelves; panel corners; tops for bead panels; nulling combined with other mouldings [a nulling is a turned moulding representing strings of beads of different sizes and forms, but generally globular, oblong, ovate, or spheroidal, which was very common both in furniture and cornices about a century ago]; contours of mouldings, Grecian and Gothic.

Part iii. contains, chair legs; uprights and spindles for chair backs; chair splats; an arm-chair top; ornaments for sofa backs, and for the end of a couch or sofa; legs for sofas or couches; a drawingroom chair back; the back of a hall chair. This part also contains short explanations, on one page, of the thirty plates which compose the work. Several of these plates are of the size of a whole sheet; so that the work is as cheap as it is good.

ART. III. *Gothic Ornaments illustrative of Prior Birde's Oratory, in the Abbey Church, Bath.* By Edward Davis, Architect, Bath. No. III. Imperial folio. London.

The first plate in this number exhibits a canopy in the angle near the entrance; the second, bosses from the compartments under the window; the

third, one of the principal spandrils, with part of it full size; the fourth, another of the principal spandrils, with part full size; the fifth, a pedestal under a canopy. The whole of these are most ingenious in design, and beautifully drawn and printed.

ART. IV. *Catalogue of Works on Architecture, Building, and Furnishing, and on the Arts more immediately connected therewith, recently published.*

FRANCE.

PONCELET: Mémoires sur les Roues Hydrauliques. 4to. 7 fr.

La Propriété, Journal d'Architecture Civile et Rurale, de Beaux-Arts, et d'Economie Sociale. 8vo. In monthly numbers. Paris.

Picturesque Travels in Ancient France. The parts relating to the province of Languedoc are now in course of publication. The volumes already completed are five in number, and comprise Upper Normandy, Franche-Comté, and Auvergne.

Comte de Lasteyrie: Collection de Machines, Instrumens, &c. 4to. New edition, to be completed in twenty-two parts, of which six are published.

D'Aubuisson de Voissins: Traité d'Hydraulique à l'Usage d'Ingénieurs. Large volume, 8vo; with four plates.

GERMANY.

Meyerheim and Strack's Architect, Part IV.: Antiquities of the Old Mark of Brandenburg. 10 dollars for the four parts.

Von Rinz: Baronial Castles of the Grand Duchy of Baden. 1 vol., royal folio; with sixty plates. 130 fr.

Crelle: Journal für die Baukunst, &c. Vol. VII., Part IV.; and Vol. VIII., Part I.

Crelle and Dietlein: Principles of Bridge-Building, &c. Berlin. 5¾ dollars.

ENGLAND.

Treatise on Isometrical Drawing as applicable to Geological and Mining Plans, Picturesque Delineations of Ornamental Grounds, Perspective Views and Working-Plans of Buildings and Machinery, and to General Purposes of Civil Engineering. By T. Sopwith. 34 copperplates. Demy 8vo, 16*s.*; royal paper, 1*l.* 1*s.*

The History and Description of the Architecture, Construction, Materials, &c., of Eastbury, Essex. Imperial 4to. 2*l.* 2*s.*

Compilation of splendid Ornamental Designs from foreign Works of recent production. 4to, 24 plates. 10*s.*

Maguire's Selection of Ornaments in various Styles. 4to. 9*s.*

Knight's Unique Fancy Ornaments. Four parts, 4to. 16*s.* Five parts will complete.

Shaw's Elizabethan Details, Part III. 4to. 5*s.*

Shaw's Ancient Furniture, Part VIII. 4to. 5*s.*

Smith on the Construction of Cottages for Labourers. 8vo. Plates. 4*s.*

The Antiquities of Christchurch, Hampshire. By B. Ferrey, Architect. 4to. 2*l.* 5*s.*; royal paper, 3*l.* 7*s.* 6*d.*

Lockwood and Cates's History and Antiquities of the Gates, &c., of the City of York. 4to, five plates, 18*s.*; large paper, in folio, 30*s.*

Catterick Church, in the County of York, illustrated; with Notes by the Rev. J. Raine; and with 13 plates of Views, Elevations, and Details, by A. Salvin, Architect.

Britton's Survey of the Borough of Marylebone; fine large coloured map, in a 4to case. 1*l.* 1*s.*

Blunt and Stephenson's Civil Engineer, Part II. Atlas folio, 1*l.* 1*s.*

Treatise on the principal Mathematical Instruments employed in Surveying, Levelling, and Astronomy, &c. &c. By F. W. Simms. 8vo. 5*s.*

Oliver Evans on Mill-Work; a new edition by T. P. Jones. 8vo, 25 plates. 18*s.*

Account of the Mining Districts of Alston Moor, Weardale, and Teesdale, in Cumberland and Durham. By T. Sopwith. 12mo, plates. 4*s.* 6*d.*

Geological Sections of Holyfield, Hudgill, and of Vein and Silver Band Lead Mines in Alston Moor and Teesdale. By T. Sopwith. 4to, plates. 10*s.* 6*d.*

Art. V. *Literary Notices.*

Elementary and Practical Instructions on the Art of Building Cottages and Houses for the humbler Classes, and for the better lodging of the peasantry and industrious classes in this country, as well as for the use of emigrants; 8vo, 8 plates and 27 woodcuts; 7*s.*; is in the press.

Mr. Robinson's *Hardwick Hall* will be published in December.

Mr. Wilkins will shortly publish two of the principal books of Vitruvius, which relate to *Civil Architecture*, with copious notes.

Mr. Weale will soon publish, from Mr. Wilkins's drawing, a *Geometrical Elevation of the National Gallery*, in a folio print.

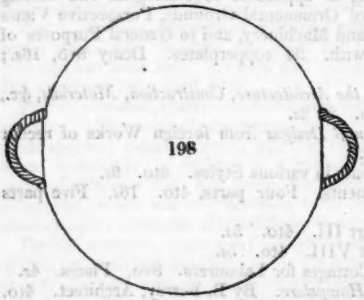
A General Treatise on Projection, showing the various modes of delineating lines, plane figures, and solids, by Peter Nicholson, Architect, is preparing for publication.

For the above notices and the preceding catalogue we are indebted to Mr. Weale.

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

Brickmaking, in Egypt, is not confined to any particular class. Most of the common labourers, and many of the mechanics and tradesmen, as well as farmers, possess the tools for making bricks; and the following is an account of their mode of proceeding:—Near the bank of the Nile, or any other place where water and rich soil may be found, one or two men go into the water, and, with a rude instrument, like a carpenter's adze, they cut about two or more feet deep, and six or eight feet long: the breadth is according to circumstances. After they have cut about a load of soil, they mix with it one sackful of broken straw, cut about a quarter of an inch long (the quantity of this material must be proportioned to the quality of the soil), and a certain quantity of ashes. After these materials are well mixed together, they are ready for moulding. One man takes a *borrshane* (*fig.* 198.), and goes to the other who is in the pit, who fills it up with the mixture; and then the first carries it to a barren place, or common. When a sufficient quantity has been carried to this place, the labourers spread the cut straw over the ground where the bricks are to be made. The brickmakers then get each of them a vessel (see *fig.* 199.) full of water, and then sit each to his work. They fill the moulds (*fig.* 200.) with their hands, and when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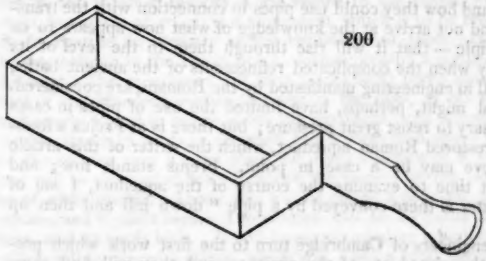


200

each mould is full, they dip their hands into the water, and pass them over the surface of the brick to smooth it; and then, taking up the mould, they leave the brick on the ground to dry, and so on. When the desired quantity of bricks are made, they are left to harden in the sun; and when they become dry on the upper surface, they are turned over, till they become thoroughly dry, and hard enough for immediate use, or for burning.

Fig. 198. represents the *borrshane*, in which the labourers carry the brick earth: it is made of the leaves of the palm tree, and is a circular mat with two handles. *Fig.* 199. represents the pot for holding the water in which the labourers moisten their hands to smooth the bricks which they are moulding. *Fig.* 200. is a representation of the mould, made of wood. — *Mashdoud Mohandez. Norwich, Sept.* 29. 1834.

The Ancients conducted Water in Pipes. — It is stated in Professor Vince's *Principles of Hydrostatics for the Use of Students in the University of Cambridge*, p. 18., that "the ancients, not being aware that a pipe would convey a fluid to a level as high as the reservoir, carried water in pipes only down hill. To convey water to a place only a little below the water in the reservoir, having a valley between, they built aqueducts, instead of carrying a pipe down the hill, and then up again."

Now, the word "aqueduct," as applied to the works of the ancients, is so sure to raise in our minds the image of those splendid remains to be seen in every direction around Rome and some other ancient cities, that a most erroneous idea appears likely to be perpetuated, by its employment as above in a book written expressly for instruction on points of this nature. For it never can be true, that, as a practical measure, it would, under all the circumstances, have been more advisable to construct "pipes," or rather tunnels, "down hill and then up again" for the purpose of conveying the streams of the magnitude with which Rome was watered, than to follow the gradual descent of the land with open aqueducts, and, when necessary, to cross the valleys at the most advantageous places. The enormous thickness of masonry requisite to confine these streams in tunnels after their descent from the Sabine and Alban hills, and the difficulty of repairing it when out of order, sufficiently exonerates the ancients from the charge of ignorance in employing the mode of construction they adopted.

In London, we confine the use of water almost exclusively to domestic purposes; and most convenient it is to have water at command on every floor of the house, obtained by the well-known principle that, when conveyed through pipes, it rises to the level of its head. But in Rome, which has no good natural springs, where the climate is hot, and where water was, as it still is, an object of magnificence as well as use; where the daily use of the public bath was a salutary fashion adopted by all, and where the public games sometimes depended on the supply; a good many pipes, fifteen or twenty miles long, would have done little towards supplying the demand of so large a population; and nothing but the gigantic idea, which that gigantic nation could alone afford to execute, of conveying whole rivers across the plain into the city, was calculated to render it, what it still is, the best-watered metropolis in the world.

That the ancients used water pipes is well known: those of earthenware are frequently found as perfect as when first laid down; and it is quite im-

possible to understand how they could use pipes in connection with the transmission of water, and not arrive at the knowledge of what now appears to us so obvious a principle — that it will rise through them to the level of its reservoir; especially when the complicated refinements of the ancient baths, and the general skill in engineering manifested by the Romans, are considered. The want of metal might, perhaps, have limited the use of pipes in cases where it was necessary to resist great pressure; but there is at Fréjus a fountain supplied by a restored Roman aqueduct, which the writer of this article is inclined to believe may be a case in point. Fréjus stands low; and although I had not time to examine the course of the aqueduct, I am of opinion that the water is there conveyed by a pipe "down hill and then up again."

Let the learned engineers of Cambridge turn to the first work which professes to treat of the aqueducts of the ancients, and they will find them accused not only of using water-pipes, but of conducting water by them, in siphons, over hills. — *T. F. L. Harwich, Sept.* 1834.

Art. II. *Foreign Notices.*

FRANCE.

Paris, Sept. 1834. — Never did any monument of antiquity cause a greater sensation in Paris than the Obelisk of Luxor. No sooner had the Pacha given permission to the French government to remove this fine monument, than 500 Arabs were employed, at the expense of the French nation, for that purpose. The French engineers who superintended the work created quite a sensation in Luxor; even the dancing-girls learnt French; and when the obelisk was removed, machinery of extraordinary ingenuity was contrived for getting it on board ship, and relanding it on its arrival in France. At length it reached Paris; and then the question was, what was to be done with it? Some advised it to be placed in the Basse Cour of the Louvre, beside the Sphinx which had lain there for the last twenty or thirty years; some recommended the Place de la Bastille; some the Champ de Mars, and some even the Pont Neuf. Numerous other places have been suggested; but objections have been made to all. For a long time, as I before observed (p. 46.), the Place de la Concorde was thought the most likely to be fixed on; but now it is said that it will be placed at the rond-point de Courbevoie, beyond the Pont de Neuilly.

Many projects are in agitation for improving the pavement of the streets in Paris. The Rue Vivienne and the Rue Richelieu have already undergone repair. The kennels in these streets have been formed of long pieces of flagstone hollowed out to receive the water, and firmly bedded in a mortar formed of cement and lime. Extensive improvements are about to be made in the Champs Elysées and the Place de la Concorde. There are to be fountains in each square of the place, and in different parts of the Champs Elysées. All the paltry buildings in the latter are to be removed, and handsome houses substituted. The arch at the Barrière de l'Etoile, at last, seems likely to be finished: two statues of Fame have been placed on the Parisian side, and models for the other sculptures are said to be prepared. The Museum of Natural History, which has been long talked of, has been commenced. It is to comprise a gallery for mineralogy and geology, hot-houses, houses for animals, reservoirs and conduits of water, &c. The gallery is to consist of a centre and two wings. The centre will be 300 ft. long; and the wings, which are to contain the herbarium, library, theatre, &c., 120 ft. long, and 45 ft. wide. The hot-houses are to consist of two pavilions entirely covered with glass, each 60 ft. long, 36 ft. wide, and 36 ft. high. At the extremity of one of these pavilions are to be two ranges of curvilinear hot-houses, presenting a surface of 140 square yards of glass. The church of St. Dénis is being repaired;

but, as this is out of the city, I will return to the public works of Paris, the most important of which is a monument which is to be erected in the Place de la Bastille, in memory of the revolution of 1830. It is to consist of a bronze column in the Doric order, surmounted by a statue of the Genius of Liberty. The monument will have for its basis three plinths or steps: the first of red Flanders marble, circular in the plan, of 30 yards in diameter, and nearly 1 yard in height above the pavement; the second will be of white marble, about 18 yards in diameter, and 3 yards high above the first, exclusive of the cornice over it; the third will form a square of 8 yards on each side, and will be elevated about 9 ft. above the cornice of the second: it will also be of white marble. Above this will be placed a pedestal of bronze, 6 yards square, and 6 yards high. The column will be 3½ yards in diameter at the base, and 25 yards high. It will be surmounted by a lantern 4 yards high, on which will be placed a statue, which will make a total elevation of 46½ yards from the pavement. These measurements are not very exact; but I expect soon to be able to send you an engraving representing an elevation of the entire design. The staircase will be of bronze, and will consist of 205 steps. Two sides of the bronze pedestal will bear inscriptions in gilt letters; and the two others will be ornamented with symbolic figures. All the ornaments will be gilt, and the torus of the base of the column will be ornamented with laurel leaves. On the shaft of the column will be inscribed, in gilt letters, the names of the citizens who were slain in the revolution of July, 1830. The capital of the column will be gilt; and also the statue of Liberty, which will hold a flambeau in one hand, and a chain, broken, in the other. The preparatory works were commenced in 1833, and the total expense is estimated at 900,000 francs. — *F. L. Besson. Rue de Richelieu, Paris.*

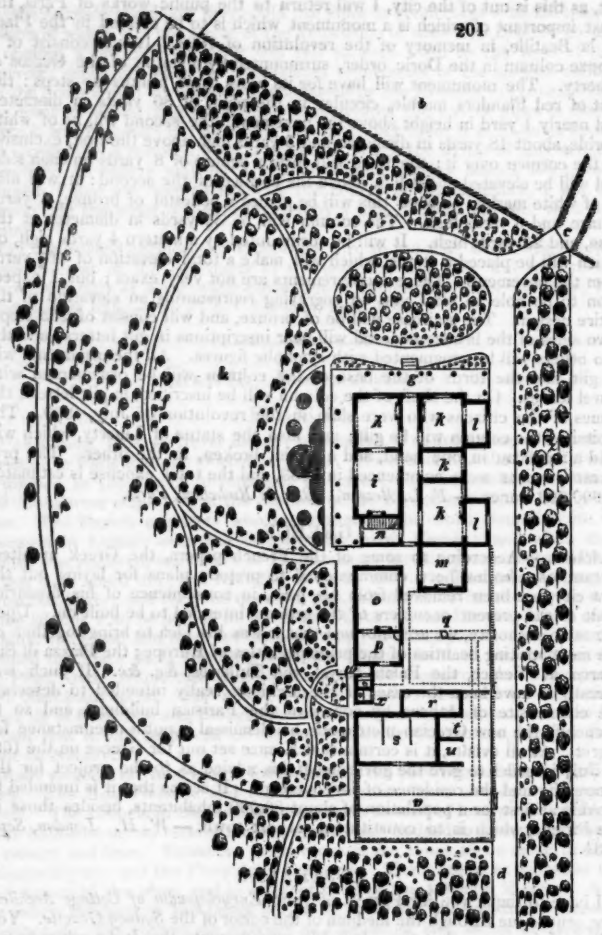
GREECE.

Athens. — According to some of the French papers, the Greek architect Kleanthos, who has been commissioned to prepare plans for laying out the new city, has been removed from his post, in consequence of his favouring some of the present occupiers of the ground intended to be built on. Upon the same authority, we are informed that it was his idea to bring together all the most striking beauties of the principal cities of Europe; the Piazza di San Marco at Venice, the Palais Royal, the Tuileries, &c. &c. If such was literally to have been the case; if the architect really intended to desecrate the classic site of Athens by copies of the Parisian buildings, and so to Frenchify the new Grecian metropolis, his dismissal is not a circumstance for regret. At all events, it is certain that Klenze set out for Greece on the 16th of July in order to give the government his advice as to the project for the future city and the residence of its sovereign. It seems that it is intended to provide at first for a population of about 80,000 inhabitants, besides those in the Piræus, which is to constitute a seaport town. — *W. H. London, Sept.* 1834.

AUSTRALIA.

I have to thank you for Part. I. of your *Encyclopædia of Cottage Architecture*, sent to me through the medium of the editor of the *Sydney Gazette*. You will think it strange, but the admirable arrangements that it describes do not seem at all suited to our colony: not only the climate, but the habits of the people, the servants, and the mode of living peculiar to a new country, seem to militate against those refinements that even in an old country cannot be easily introduced. We require refinements of a different description; and I never take up a work on any of the countries bordering the Mediterranean, but I observe many little things, the results of experience, that might be introduced here with advantage. Could you not devote some papers in the *Architectural Magazine* to the architectural arrangements suitable to our colony, pointing out the different styles of building and interior distribution used in

201



the domestic architecture of Spain, Italy, Barbary, and Syria? Such papers would be very useful to us, though they might perhaps be profitless to you.

I send you a sketch of a design for a cottage (*fig.* 201.), which my father-in-law intends building near Sydney. The ground plan was given to me by Mr. Lewis, with whom, I believe, you are acquainted.

The house is to be an exact square, and only one story high; the cellar is to be under the drawingroom, with stairs from the storeroom leading to it. Two dressing-rooms and the storeroom are taken out of the veranda. The ground falls to the north-west. The kitchen-garden (*a*) and the paddock (*b*)

are already formed; *c* is the entrance road; *d*, a back road to the vineyard and the woods; *e* is a private road to the stable-yard and offices; *f*, walks on the lawn; *g*, the veranda, under which is the main entrance to the house; *h*, dining-parlour; *i*, drawingroom; *k k k*, bedrooms; *l l*, dressing-rooms; *m*, nursery; *n*, storeroom and stairs to cellar; *o*, kitchen; *p*, back-kitchen and washhouse; *q*, well; *r*, wood-house; *s*, stable; *t*, gig-house; *u*, tool-house; *v*, stable-yard; *w*, best privy; *x*, servants' privy; *y*, natural wood; *z*, shrubbery; and *&*, flower-garden.

The two principal aspects are north-east and south-east: these are the most agreeable here. The north is too much exposed to the sun, and so is the west; and the west is also exposed to the hot winds, or Australian simoom, in the summer; and, in the winter, to very keen cold winds. The south is altogether an objectionable aspect, on account of the prevailing winds coming from that quarter being always cold, and very boisterous. The rain and the generality of storms also come from the south. So powerful, indeed, is the rain, that all the sides of the houses that face the south are plastered; for, if this is not done, the rain penetrates the bricks or stone, and makes the walls always wet. You will observe that, in the plan of the cottage (*fig.* 201.), the kitchen is detached: this is desirable, not only on account of the heat, but also to cut off all communication with the convict servants, and to avoid the smells, and the flies, which are very troublesome in summer: yet it is necessary that the kitchen and all other out-buildings should be connected with the house by covered ways; for it rains here so tremendously, or rather spouts, that it is impossible to move in it without being thoroughly wetted.

Sufficient attention has not yet been paid here to arrange a house according to the proper aspects and prevailing winds. Besides what I have mentioned just now, the sea breeze is very potent near Sydney: in summer it sets in about ten or eleven o'clock, and then, after a time, gradually dies away until sunset, when it sets in again. This wind comes from the north-east, and is very refreshing after a hot day, or a hot morning; from seven to ten oclock being the hottest part of a summer day in regular weather.

It appears to me that thick walls, with recesses, and houses two or three stories high, with balconies and windows commanding different aspects, would be more agreeable than the large-roofed cottages that are mostly adopted here; but the fact is, that this is the cheapest mode of building, as roofing is not expensive, shingles being universally used instead of tiles. The Indian *chunam*, or plaster, has not yet been introduced: this would make the houses in the town much more healthy and agreeable. Sydney is, I am afraid, becoming very unwholesome, the houses being too much crowded, and proper arrangements for drainage, &c., not having been made when the town was originally laid out. I have found my own health, and that of my children, sensibly improved by merely moving to a residence within the reach of the sea breeze. — *J. Thompson. Sydney, Aug.* 10. 1833.

Art. III. *Domestic Notices.*

ENGLAND.

Both Houses of Parliament were burnt to the ground, on the night of Oct. 16.; and it is said to be the intention of government to rebuild them on the same spot. Perhaps this may be desirable, on account of the offices in the neighbourhood; but, we must confess, we should have preferred a more open and elevated site. Were it not that we should regret to see the space intended to be left open at Charing Cross covered with buildings, we should have pointed to it as a suitable situation. A large and lofty quadrangular building there might easily be made to contain both Houses of Parliament, with all the offices and other appendages necessarily connected with them. At all events, before anything is done, either in the way of rebuilding on the

ancient site, or on a new one, we hope that the whole architectural talent of the country will be invited to send in designs and suggestions; and that these will be impartially examined by a competent commission. We constantly hear of cases in which plans have been advertised for in competition, while the architect who is to be employed was appointed beforehand; and the only use of advertising for the plans was, to admit of his gaining hints from them. We should be glad to expose this practice; but, notwithstanding the frequent occurrence of the circumstance, we have not been able to prevail on any of the architects who complain of such treatment to authenticate a case by their names.

New Churches.—A correspondent has sent us the *Fourteenth Annual Report* on the subject of building new churches; from which it appears that additional churches are to be erected at ten different places, and that plans have not yet been received for them. Our correspondent complains that he has been unable to procure any farther information at the office of the commissioners, in George Street, Westminster. All we can do is to give publicity to his complaint, not having, as he enquires, "any interest with any of the commissioners;" and, like him, not choosing to make any enquiry, where a necessary preliminary, as he alleges, is to "fee the clerks for their trouble."

Cambridgeshire. — *The Fitzwilliam Museum, Cambridge.* The time allowed for sending in designs for the building about to be erected for this purpose, is now extended till the 10th of next April. There is little doubt but that the competition will be strong in point of numbers; and we hope it will prove equally strong in point of talent. The subject itself is of a class highly favourable to display, and well calculated to bring out the original talent of those who are gifted with it. We trust, therefore, that the design selected for execution will be creditable to the national taste; and prove an additional architectural gem to the university and town of Cambridge.—*W. London*, 1834.

Fitzwilliam Museum, Cambridge.—It is strange that the document furnished to architects contains no programme whatever relative to the intended building, nor any information as to what is required, beyond a plan of the site itself, which affords an extent of about 360 ft. in front, by 150 ft. in depth. It is true, farther information may be obtained by direct application to the vice-chancellor; but even this, it should seem, will be given only to those who are disposed to make drawings and estimates for the purpose, "gratuitously." In our opinion, this is a very zigzag and rather unintelligible way of proceeding on such an occasion. If it is desired to limit the competition, wherefore are architects in general invited to it by public advertisement? and if, again, the competition is to be perfectly open to all, why clog it by difficulties that must entail so much trouble upon those who will have to answer the applicants for information, separately and individually? — *H. Sept.*, 1834.

Devonshire.—A splendid new masonic hall was completed, early in September, at Tiverton; and it was dedicated on Sept. 10., eleven lodges, from different parts of the county, being present. The hall is attached to the Angel Inn, near the river Exe. At the end, opposite the entrance, stands the chair of the W. M. [worshipful master], under a rich canopy, supported by two pillars in front, of white and gold; the whole raised on three steps of chequered work. The chair of state is also white and gold; with crimson velvet seat and arms, adorned with masonic emblems embroidered with gold; altogether got up in a first-rate manner. On each side of the chair and canopy are two other canopies; and at the back of these is a crimson and blue painted drapery, which extends across the whole end of the room. The floor is painted black and white chequer-work; forming a pavement of great beauty, the design of Brother Captain Hodges. The walls are painted around with niches, in which are placed statues of the old Fathers of Masonry; of whom the initiated will discover mention made in the volume of Holy Writ. The ceiling contains, in the centre, a large circle, extending the full diameter of the room, representing the interior of an open cupola, with the sun shining through the centre; and on the sides are depicted the twelve signs of the zodiac. Midway between each

end of the room and this large circle are two smaller circles, with masonic emblems. In an ornamented recess, at the lower end of the room, stands the organ; a very good instrument, having eight stops. The remaining furniture of the lodge is exceedingly handsome; being, for the most part, presents from some of the brethren. Over the seat of the J.W. [junior warden] floats a beautiful banner, belonging to the chapter; and, opposite to this, over the seat of the secretary, another white silk banner is suspended, on which is admirably painted the subject of Abraham offering Isaac; in allusion to the name of the lodge, *Fidelity*. The splendid banner last mentioned, together with the niches containing the statues, the elaborately ornamented and highly finished ceiling, and also the drapery at the head of the room, were executed by that talented and much respected artist, Brother L. E. Reed of Tiverton. This superb hall was the admiration of all who saw it, whether the initiated or others. It is certainly a credit to "The Lodge of Fidelity;" and will be a lasting honour to the liberality and spirit of the craft of Tiverton, so far as the internal decorations are concerned: we cannot, however, say so much for the exterior, this being by no means answerable to the beauty within. The entrance is exceedingly bad; and we hope soon to hear that a suitable porch is made to this temple, dedicated to religion, morality, and science, and sacred to a pure system of ethics, veiled in mystic allegory. A copious account of the ceremonies which took place on the occasion of the opening of this hall will be found in the *Exeter Flying Post* of Sept. 11. 1834.

Monument erected to the Memory of the late Earl of Plymouth, on Broomsgrove Lickey. — The ceremony of laying the foundation stone of this monument was performed, on the 15th of May, by Lord Lyttelton, who acted as grand master mason. The form, as will be seen by the engraving (*fig.* 202.), is that of a simple obelisk, standing on a pedestal 17 ft. in height, and about 20 ft. square. The whole height of the monument will be, according to the drawing, 91 ft. 6 in. The pedestal (on the sides of which there are inscriptions in sunk panels) is approached by three steps, which run all round; and these, together with the structure, are formed of the elegant Anglesea marble. The situation chosen by the committee for this monument is the top of the Lickey Hill, which is a few yards to the left of the coach-road proceeding from Worcester to Birmingham; and the obelisk, when the trees around the spot are felled, will, from its lofty locality, be seen at a great distance. This monument is from a design by Mr. John Hansor, architect; and the contractor is Mr. John Welch, who has undertaken to complete the structure in five months from the time that the foundation was laid. It differs from other monuments of this description, in having the faces of the pedestal battering; that is, the die of the pedestal is narrower at the top than at the bottom where it rests on the plinth, which harmonises well with the pyramidal form of the upper part. — *R. June*, 1834.

202

The Birmingham Town Hall. — While in England, I saw the whole of the new Birmingham Musical Hall, on the evening it was first lighted with gas;

and previously during the day. It is a noble structure; but, I think, very defective in some respects. None of the stones for the building (which are the hardest limestone I have seen) were cut by the steam-engine, as was, I I think, stated in the *Mechanics' Magazine*. The organ is the most stupendous machine conceivable; and the effect of the whole, when standing in front of it, very august. But the ceiling, to my taste, is in an execrable style: divided into three great squares, containing circles; with very deep radial panels and borders *à la Grec*, and between the quarter panels poor meagre ornaments. The light was utterly insufficient: it came from globes, in the side windows, containing triple argand burners. I do not think they will ever light it effectually, without some great central light. The windows and galleries have an excellent effect; and that of the exterior, seen a good way down the street, from the majestic attitude (if I may so speak) of the building, is grand. The roof, I am sorry to say, appears to be sinking rapidly in many places; in some, as much as 7 or 8 inches: it is all covered with lead. I could not get into it; but I wish you would get plans of it, for the *Architectural Magazine*, from some correspondent. Externally, when I saw it, it seemed to me to indicate such derangement inside, as would soon become dangerous. — *R. M. Dublin, Sept.* 19. 1834.

SCOTLAND.

Cenotaph to the Memory of Sir Walter Scott. A printed "*Address to the Committee and Subscribers of an intended Cenotaph to the Memory of Sir Walter Scott, Bart., at Edinburgh,*" has been sent us by Mr. Britton. Its object is to erect a cenotaph in the form of a cross, and it is stated that Mr. Britton has made some designs illustrative of his opinions and suggestions.

In recommending a Cenotaph for Sir Walter Scott, at Edinburgh, in the form and general character of a Christian cross, Mr. Britton observes: "I am influenced by the conviction, that a design of this kind is more analogous to the present age, to the partialities of the deceased, to the pervading character of his writings, than any other species of architectural composition. Neither Egyptian, Grecian, nor Roman, could be made to impart that locality and nationality of sentiment which belongs to the architecture of the middle ages: this brings with it, and belongs to, the chivalric and romantic annals of Great Britain; it blends the military and monastic; it unites the civil and ecclesiastical emblems of by-gone days; it may intimate the gloomy, almost impregnable, castle of the rude and haughty baron; and also the gorgeous and sainted minster of the catholic devotee. Whilst the one furnishes dungeons and halls, galleries and cells, lofty embrasured towers and moats, drawbridges and portcullises; the other is designed and adorned with all the luxuries of architectural composition and sculptural ornament. These are objects and associations belonging to '*The Lady of the Lake*,' '*The Lay of the Last Minstrel*,' '*The Antiquary*,' '*Kenilworth*,' '*Peveril of the Peak*,' &c. &c., and these unfold to the fancy of the antiquarian architect an exhaustless store for combination and composition. A design in the form, and with some of the peculiarities, of the stone cross, is susceptible of great variety of surface, as well as great power of expression. Whilst its architectural members may indicate something of the military and monastic character of the middle ages, its sculptured enrichments ought to display some of the prominent personages and characteristic incidents of the bard's and novelist's creative fancy. The engraved and sculptured designs of the ancient Egyptians and Greeks have lasted for many centuries, and are examined and investigated with intense interest and delight by artists and antiquaries of the present age; so may future connoisseurs and antiquaries look with curiosity and delight at the *Scott Cenotaph* (if appropriate), which an admiring public may raise to his fame. Instead of armorial insignia, which generally are as unintelligible as Egyptian hieroglyphics, and have little that is emblematical or historical in their designs, I would introduce a series of sculptured subjects, both in statues and basso-relievos, to tell tales of the author and of his writings; and these subjects

should mark and characterise certain interesting scenes, personages, and events which are rendered familiar to the reader of Scott's works. I would also call into action and laudable rivalry the talents of modern artists, and put their designs on permanent record, and in immediate association with the name and memory of Scotland's boast." (p. 4.)

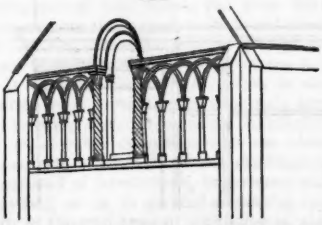
Aberdeenshire. — *A round tower*, 76 ft. high, and 17 ft. in diameter at the base, has been erected at Muthil, near Peterhead, in commemoration of reform. The tower contains a stone staircase, which leads to a circular apartment at the top, with windows commanding beautiful and extensive views in every direction. This tower has been erected by a local subscription; and we consider it as doing the highest honour to the subscribers, since they could have no motive whatever of a grossly selfish nature. We would rather see one such tower than a thousand of such columns or obelisks as those erected to Lord Melville, Lord Plymouth, or any other noble or wealthy individual by his dependants or friends, which are, for the most part, no proof of real merit. In the notice of this tower, given in the *Scotsman* of Sept. 3., it is stated that the apartment at the top has four windows, answering to the four cardinal points. This has a very good effect exteriorly in a square tower, but in a round one, it is very bad. Three windows would have been better: but any number above seven would have been better still. What is the reason? Four windows can never be seen in such a point of view as either to give the expression of regularity and succession, or to group; that is to say, they never can be seen in such a way as to give the idea of a whole. Where there are three windows, never more than one can be seen at a time; and this one, being complete in itself, forms a unity or whole. The best mode, however, is by having a number of windows, by which the piers between them are rendered so small that from every point of view several of them are seen; and this, with the obvious continuation of the series round the tower, produces an effect at once rich and grand, approaching even, as Burke observes, to the sublime.

Sutherland. — A monument to the memory of the late Duke of Sutherland is about to be erected on the summit of Benvrogie, a mountain in the parish of Golspie, in the county of Sutherland. The monument is to be erected by the tenantry on the estate, and will be 75 ft. high. (*Inverness Courier*, Oct. 1834.) [We should be much obliged to Mr. Barry (the duke's architect at Trentham), or to whatever other architect may be the designer of this pillar, for further particulars.]

Art. IV. *Retrospective Criticism.*

Hoylake Church. (fig. 134. p. 293.) — Your engraver has made rather an unfortunate mistake in the perspective view of Hoylake church. The arches at the west end are not pointed, as shown in the engraving, fig. 134.; but they constitute an arcade of intersecting semicircular arches, as shown in *fig.* 203. I should be glad if you would notice these errors, as at present it appears rather absurd to illustrate an article on Norman architecture by a building in which pointed arches occupy the most prominent place. — *J. A. Picton. Liverpool, October 7. 1834.*

203

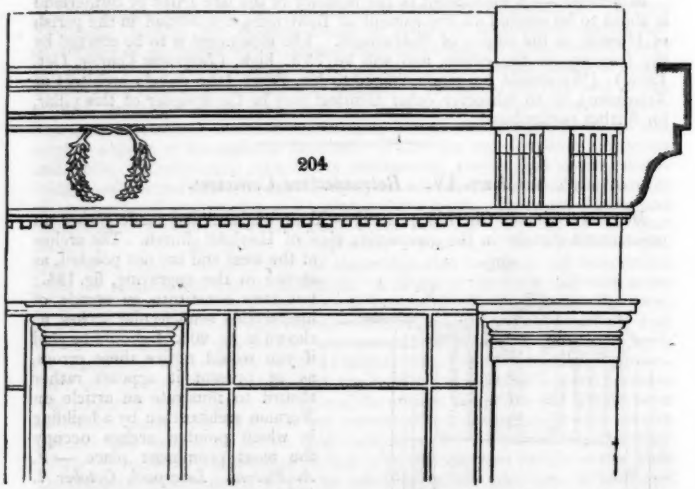


Huskisson's Monument at Liverpool. (p. 227.) — The author of the critique on this monument is in error, in stating that "the interior diameter of the columns is considerably less than the exterior." They are not fluted inter-

nally, as they are on the outside: the capitals are fully enriched outside, but inside they are merely blocked out with plain square stones. (See Stuart's *Athens.*) Nevertheless, in the general justness of the criticism I fully coincide. —*J. A. P. Liverpool, Oct.* 7. 1834.

Smirke's Suggestions for the Architectural Improvement of London. (p. 177.) —This work has been reviewed in the *Westminster Review* for July, 1834, in a manner which demands the attentive perusal of architects, and of all who are likely to have any thing to do with the improvement of towns. As we consider it a part of our duty to recommend to young architects every work that contains any useful article in the way of their profession, we would advise them to add this number of the *Westminster Review* to their library. Many, we trust, read this Review regularly; not only on account of its general merits, but because it and the *Foreign Quarterly* contain more articles on architecture and the fine arts than either the *Edinburgh* or the *Quarterly.* In the article to which we allude, the reviewer shows in detail what we have hinted at years ago in the *Gardener's Magazine*, viz., that no efficient and general system of improvement can be expected for the metropolis, till it is governed by a municipal body elected by a regular representative system; in short, a local parliament, in the election of the members of which every householder should have a vote. This would render altogether unnecessary the well-meant suggestions of Mr. Smirke for providing villages, partly at the expense of government or the public, in open spaces in the suburbs of the metropolis, for working mechanics. These, and every working class, must be put into a condition to take care of themselves.

Improved Shop Front.— I approve of the general principle set forth in the article in p. 113., on improving shop fronts, but consider that the blocks terminating the cornice ought not to be supported by brackets resting upon the pilasters; as the architrave is thus cut off, and prevented from having a bearing upon the end pilasters sufficient for the main beam which is to support the superstructure. The architrave, whatever it may really be, affects to be



this main beam, and consequently ought to have a firm and long bearing at each end: now, with respect to the arrangement adopted, it may, perhaps, be said, that the architrave has a firm bearing, the brackets being only attached

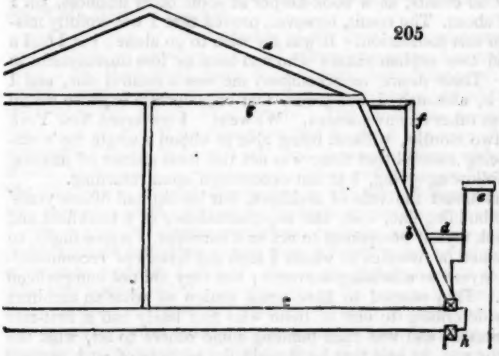
to its face, and not taking its situation; but this does not appear to be the case, and, even if it could appear so, the arrangement, I apprehend, would be incorrect and faulty. The architrave is a beam of such importance that it ought to be of the same character and general appearance throughout its length, and its position seems to determine that it should be used for supporting upon its upper side only. The brackets ought to be laid upon it in the same manner as the frieze is, and in the way the smaller beams which support the floor, and which are frequently terminated in a triglyph, may be supposed to be: indeed, where only one bracket is used to support a terminating block, it may be considered as merely an elongation of one of these smaller beams.

I have used this arrangement both in a shop front, and in a public building under peculiar circumstances; adopting either the bracket which occupied the place of a triglyph, or two which extend to nearly the width of the pilaster, as appeared best suited to the case. I have sent a copy of the drawing (*fig.* 204.) which accompanied the original article, with only the necessary alteration, in order to facilitate comparison. — *Geo. Dymond. Bristol, June* 17. 1834.

The above we consider to be just, useful, and practical criticism; and we only wish this correspondent, and others who think like him, would be industrious in pointing out similar errors in public buildings. We also hope that Mr. Dymond has not forgotten the design for a villa, which he kindly promised to send us. — *Cond.*

A Curbed Roof. (p. 39.) — Lest the definition of a curbed roof, in p. 39., should not be clearly understood, allow me to illustrate it by a sketch (*fig.* 205.), in which *a* is the common rafter of the roof, and *b* the curbed rafter; *c* is the flooring joists, *d* the gutter, *e* the parapet wall, *f* a dormar window in the curb part of the roof, and *g* the ceiling and tie-joists; and *h* the wall plate of the flooring-joists. — *J. I. K. Manor Place, Paddington, 10th March,* 1834.

205



Curbed Roofs (p. 39.), in any situation, are unpleasing objects; both from the inelegance of their forms, and from the idea of insecurity that they present. Not only are these roofs to be found covering fourth-rate houses in the streets of London, where the price of ground is high; but they may also be seen in front of third and second rate houses in the vicinity of town.

It is muchto be regretted, that, in and near London, we frequently find a curbed roof presenting its unshapely appearance high above a delicate balustrade attic, over an enriched entablature of the Corinthian or other order; while, in other countries, even the chimney stacks on one side of a street (that can be seen from the drawingroom windows on the other side) are composed of hewn stone, or covered with cement (as the case of the front may be), so as to present a pleasing appearance. The very intention of an attic at the wall head of a building is, that the roof, which is not very susceptable of being ornamented, may be hid: hence the inconsistency of the circumstance just mentioned relative to the houses in the vicinity of London. — *J. R. Bayswater, April,* 1834.

Emigration of Architects to North America. — At p. 90. you inform your readers of the emigration of two or three architects who have been contributors to your *Encyclopædia of Architecture*. I most heartily wish them success, and would not on any account try to keep a man at home who is fully bent upon leaving his native land; because nothing that can be said to such a person (considering the many conflicting statements respecting an emigrant's prospects) will ever satisfy him that he may as well stay at home; and, if he is restrained at first, he will in all probability still continue to cherish the desire, and, becoming indifferent to every thing about him, will eventually go (perhaps be in a manner compelled) under less favourable circumstances than if he had started at first. I feel convinced that nothing short of experience will satisfy such persons; friendly warnings go for nothing: those writers who give an unfavourable account of the country and its inhabitants are, if read at all, set down as aristocrats, or very illiberal persons; while those who speak in their praise are read with avidity, and every sentence taken in a more general sense, if possible, than even its author intended it to convey. Such is the effect of prejudice.

I am sorry to say I have purchased this experience; and dearly bought it was, I assure you. After struggling unsuccessfully through the six previous years, I began to think it was time to go farther in search of employment; and having informed myself of the prospects offered in the United States, as well as I was able from the then recently published works on that subject, I came to the determination of visiting New York; having taken it for granted that I should certainly find employment there either as a clerk to a surveyor or builder, or, at all events, as a book-keeper in some other business, till I could turn myself about. The result, however, proved that I was wofully mistaken in coming to this conclusion. It was my wish to go alone; but I had a wife, and she had two orphan sisters who had been no less unsuccessful in life than myself. Their desire to accompany me was a natural one, and I could not resist it, although I was aware that considerable expense would attend it, as well as other inconveniences. We went. I traversed New York almost daily for two months, without being able to obtain a single day's employment; and being assured that there was not the least chance of meeting with any till the following spring, I at last determined upon returning.

I have never assumed the title of architect, but having had fifteen years' experience in the building line, with the superintendence of a brickfield and limekiln, I do think myself competent to act as a surveyor. Accordingly, to the several gentlemen in America to whom I took out letters of recommendation, I described myself as a building-surveyor; but they did not comprehend what that meant. They seemed to have some notion of what an architect was; and on my describing to one of them who had lately had a first-rate house built for himself, and was then building some others to let, what the office of a surveyor was, he said that he thought the services of such persons were very requisite in New York. I soon, however, ascertained there was not a shadow of chance for me in that branch; for the aforesaid gentleman assured me there had been no drawings made for his house, and that the almost invariable practice is, to fix upon a house already built, as a model, either to be copied exactly, or with such variations as the proprietor may think fit: an agreement is then drawn up, in few words, and, as you may suppose, in very vague and general terms, and the employer is left at the mercy of the builder for the completion of the contract. In consequence of this system prevailing to a great extent, I do not believe there is full employment throughout the year for half a dozen working architects or surveyors. This method of building from patterns, in America, is in some measure to be accounted for by the manner in which the building-ground is there disposed of: it is chiefly in the hands of the corporation, and as one portion gets filled up, another is brought into the market. The ground is sold in lots of 25 ft. frontage by 100 ft. deep; and, as the price of these has risen to a great height, there is, in almost every instance, a house built on each lot, the price being too high to allow of two

lots being used for one house. The Americans are averse from paying for any things which appear to them superfluities; and it is the interest of the builders to persuade them that the services of the architect and surveyor are such. There is as little to be done in the way of keeping accounts, as in drawing; and they are, in general, both done by a journeyman who works the greater part of his time at the bench. The master builders are practical men, and, with very few exceptions, men who have gone over from this country as journeymen carpenters: being used to work so much by contract, they are not very particular in keeping accounts; and they are assisted in the little that is done, by the operations of a public officer, whose duty it is to inspect every cargo as it comes into port, when he measures every board, and scores the quantity upon it, reduced to 1 in. thick. In New York, timber is always brought in boards and scantling; and I do not recollect seeing any in the log during my stay there, except mahogany from the south. A part of a board or scantling, I was informed, is never taken to a job from a carpenter's yard. One the nearest the size required that can be found is picked out, and, if only half of it is used, the workmen carry home the remainder. I cannot answer for this practice being general; but I have seen large pieces of good fir timber hacked up for the fire, which could only have been obtained in this way. During my unhappy sojourn in New York, I could see by the advertisements in the different papers, which I daily searched (in doing which there is great facility afforded, an accommodation which I never could meet with in London), that there were several others in the same line as myself most anxious for employment; one of whom described himself as having served his articles under Mr. Nash in London.

With respect to the prospects of the gentleman you mention as going out with a cargo of chimney-pots and other ornaments, I would observe, that in New York they build their houses very lofty, many of them six stories high; consequently, if chimney-pots are required at all, they are seldom seen from the closely filled streets. The Americans are very fond of ornament, but at the same time they like to get it at a very cheap rate. There are many French in New York, and communications with their country are almost as frequent as with ours; consequently, I apprehend, they would put any Englishman out of the market in the way of *papier maché*. There are also several persons carrying on business as carvers; and very expert they are, I assure you, in carving mouldings, capitals, and other architectural ornaments in their soft pine; giving them a finish quite equal to the composition ornaments made in London. These are chiefly used in the frontispieces of their best houses and shops; comprising (in private houses) a richly moulded entrance door, columns, and pilasters (in some instances these are of marble), with mouldings over side lights between, and fan light above. This arrangement for the admission of light to the hall would no doubt be more generally followed in this country, but for a very obvious reason. I also saw some plaster ornaments used in inside finishing, equal to any thing of the kind, in point of design and finish, that I had ever seen in England.

I trust that in offering these remarks, I shall not be thought obtruding my private affairs; my object being, to prevent others from falling into the same errors, by coming to wrong conclusions, as I did. The only way to do this, is to teach people to discriminate, and to make proper allowance for the prejudices and predilections of the authors they read. Thus, Mr. Stuart's work will be found an unerring guide to any gentleman of small fortune making a pleasure excursion through the States; Mrs. Trollope's and Captain Hall's can only serve any lady or gentleman who has preconceived a very unfavourable opinion of the Americans, and is determined to confirm it by a transatlantic tour; while the small fry, and scraps in the periodical publications, are at best but blind guides. The safest way for a young man to act, especially if he has a wife and family, is to go over first alone, with a view of seeing and hearing what his prospects are likely to be; and then, if they appear favourable, returning for his family, &c. This is frequently done, but

even then it is not safe to allow too long a period to elapse between the first and second visit: for a young man, who went out with his wife and child in the same vessel with us, afterwards told me he found trade so much altered for the worse, since his visit there three years ago, that he should never have returned if he had been aware of it.

Although I met with such a serious disappointment, I should be sorry to be thought as joining in the idle clamour raised by many against the Americans; as I do not lay the blame of my want of success either on them or their country. I had well informed myself on the subject of their peculiarities in manners and customs (except, as it turned out, in that which was for me the right one), and found no difficulty in accommodating myself to them. My expectations were as moderate as it was possible for a person to lay them; but I did expect to find employment, and utterly failed. It is frequently observed, that, notwithstanding the emigration of so many thousands of persons from this country, they are not missed; but this may in some degree be accounted for by the greater part of them returning; and I am of opinion that three fourths of the mechanics and others, not labourers or farmers, who have arrived in New York within the last two or three years, have made a hasty retreat. Trade there, as far as I had an opportunity of judging, appeared to me, in general, as much overdone as in London; and that curse to the mechanic, a Trades' Union, had got into operation. For the farmer and agricultural labourer, particularly the latter, there is an inexhaustible field for employment; there is also a good chance for rough hardworking mechanics, who are never likely to become any thing else here: but to all above them on the scale, I would say, stop at home, and put up with your difficulties if you can, rather than fly to others which you know not of. The Americans generally are not fond of laborious employment; consequently, they seize on the lighter occupations, to the exclusion of foreigners. I am afraid you will think I have already trespassed at too great a length, and I will therefore conclude by requesting you will make what use you please of the above, and I shall be happy to answer any queries for further information on the subject, as far as I am able, and for that reason I enclose a card with my real name and address. —*Z. Hertford, April* 24. 1834.

The Arch-headed Openings in the Chimney Top, proposed at p. 163., are said to "create a draught:" but I cannot conceive in what manner they can do so. I have, until now, conceived that such openings would have an opposite effect. We are not to consider wind as having any property different from that of water in motion. On the contrary, we know that, by exposing a solid to the action of either fluid, the current does not impinge against the body, but, by reacting, pushes up the moving mass quite clear of the top of the obstacle. That this is true, any person may satisfy himself, by observing how driving snow gets over a wall. It rises far above the wall before it gets over. Again, let him observe how the snow gets over a gate. He will see that the snow does not rise above the upper surface of the horizontal bars, but sweeps exactly across their upper surfaces. In like manner, it is presumed that, instead of the wind being "broken" by the arched openings between the flues, it will pass over the openings of the vents in a comparatively solid state, and so prevent their action. In short, there does not appear to be any known property of wind that can warrant our breaking and scattering it about at the chimney head, but every thing to induce us to keep it in a solid state, provided that the upper side of the coping is inclined about 45° to the current, and the margin of the flue is dressed as straight as possible; and also that the coping is made to project but very little over the shaft. It is only from these properties, and the additional altitude which a can confers on a chimney, that we may rationally explain its utility. — *John Milne. Edinburgh, July*, 1834.

Hinging Doors to Rooms. — I cannot conceive why we must hinge the "doors on the side nearest to the fire, whether they are in the same wall, or at right angles with it; otherwise they will draw out the smoke every time they are used." (p. 201.) An architectural maxim, like a definition in geo-

metry, should be a simple idea, incapable of contradiction; or else it should be in the form of a proposition fully demonstrated. In the mean time, I cannot conceive what could induce smoke to come down the chimney by opening the door either to the right, or to the left; providing that I open or shut it in both cases with an equal velocity. — *Id.*

Blank Windows. — I beg leave to offer you a few remarks on the following "Architectural Maxim" given in your *Architectural Magazine*, p. 236.: — "If blank windows are ever allowable in original compositions, it can only be where they form part of a system of windows. To introduce them where they form no part of such a system, that is, where there are no real windows at all in the elevation, as in the exterior elevation of the Bank of England, and in the front of the National Gallery at Charing Cross, is contrary to every sound principle of architectural composition."

I presume that you would justify this censure, by observing that they are useless, and, consequently, inadmissible. Now, it appears to me, that even on this ground, at least as regards the latter example, these windows are capable of defence. It might be urged, that these partial openings are the means of lessening the great weight of wall above the lower windows. This seems to me equally satisfactory with the reasonings which some writers have made use of, when telling us why certain forms and objects may be admitted in design, and how it is that they give us pleasure in viewing them: I mean, those writers who would reduce all beauty in architecture to the principles of utility, aptitude, and conveniency.

But it is upon other ground than this that I would now attempt to defend the admission of blank windows, attached columns, &c., in architectural designs.

It cannot, I think, with any reason be denied, that the principles by which we are affected with what is termed *Beauty* are the same in Nature and Art; that, from whatever hidden cause it be that a man derives pleasure when viewing a beautiful object, this cause is the same both in the works of Nature and of Art. When the advocate for the Theory of Fitness suffers himself to be drawn into the wide field of natural beauties, he is immediately surrounded with insurmountable difficulties. This, I think, Burke has most satisfactorily shown. "On that principle," he observes, "the wedge-like snout of a swine, with its tough cartilage at the end, the little sunk eyes, and the whole make of the head, so well adapted to its offices of digging and rooting, would be extremely beautiful." (*Sublime and Beautiful*, part iii. sect. 6.) How admirably does the shell of the tortoise serve as a castle to its rightful occupier! but I fancy that more admiration is bestowed upon it when, by being wrought into ornaments, this fitness is at an end, than it could obtain while shielding the animal. Many things are very beautiful, though no use has ever yet been discerned in them; and I would, with Burke, appeal to the first and most natural feelings of mankind, whether, on beholding a lovely eye or mouth, any ideas of their being well fitted for seeing or eating ever present themselves. To apply this more immediately to our subject: When wholly occupied in admiring a noble portico, what is it that thus captivates us? Are we engaged in thinking how admirably the portico is adapted to afford shelter from the sun's rays, and from the rain? or, how efficiently the columns support the entablature and roof? When the eye is dwelling with pleasure on an Italian range of windows, is it the fact, that a great quantity of light is admitted by these windows which affords this pleasure? I trow not. It is said by some, that attached columns may be employed, as they strengthen, or appear to strengthen, the wall against which they are placed: but can any body tell me, when admiring their effect in a building, that his satisfaction springs from a knowledge of the additional stability which they give to the main walls? If it be so in fact, it must be first satisfactorily made out to him that the walls stand in need of extraneous support, and then that these columns are calculated to afford it. Upon finding these to be facts, we may call the building beautiful, and admire it: in other words, the absence or presence of beauty in

an object is the result of a course of reasoning in the mind. But is not this a strange confusion of terms? Were it indeed true that attached columns are only to be admitted in design, on the ground that they appear to afford additional strength to the walls, we might, on some occasions, apply them thus without any entablature, as a Gothic buttress; nay, they would give equal stability to the wall, though we should even decapitate them.

In other branches of the fine arts, the judgment does not lay claim to this absolute sway. The sole end to which music aspires is to delight the ear. The same may be said of landscape-painting, and of some species of ornamental furniture. We call architecture the queen of the fine arts, and, in very deed, she is far too noble a queen to be placed *wholly* under the despotic jurisdiction of the cold dictates of judgment.

If I am unable to persuade the lover of the Aptitude Theory to forsake his favourite principle, I may, at least, urge him to follow this principle whither it will lead him. The only author I have met with, who attempts to do this, is Durand, in his *Précis des Leçons d'Architecture*. Now, what is the result at which he at length arrives? Were not men so prejudiced in their favour, he would prohibit the use of the Composite, Corinthian, Ionic, and Doric Orders! He would consign to oblivion those objects which most think to be the very pride of architecture, the richest diadems in her crown: he tells us that cornices are inadmissible in the interior of buildings, unless they support, or appear to support, the ceiling. As to beauty of contour in mouldings, it is all prejudice: since, however, mankind are so universally foolish as to admire some profiles more than others, on this account, and on this account alone (he says), we should give our mouldings certain forms in preference to others. Flutings (he observes) are useless; and then signs their death-warrant. M. Durand, who is professor of architecture at the Polytechnic School, finds that his theory must, when carried out, bring him to these determinations. One might suppose that he has been much with those whose slashing propensities, from their possessing a more extended field of action, brought on such disastrous results to their king and country, at the end of the last century: and thus can he, with more confidence than others, pronounce condemnation on those things which have been the objects of admiration for ages. Yet, although it be passing strange and surprisingly bold in a man to give utterance to such sentiments as these, it seems to me that they are nothing more than what one is constrained to allow, who holds that, in architecture, whatsoever is useless is inadmissible; and I believe that much praise is due to some portions of his work. In Gothic architecture, this theory is wholly untenable. Of what *use* are pinnacles, battlements to a church, and (what, I think, is, in a degree, analogous to blank windows) that panelling which we may sometimes see spreading itself over an old church tower with such wonderfully rich effect?

But, surely, it will be said, Fitness and Utility must be taken into consideration, when judging of the merits of an architectural composition. Undoubtedly they must: and I admit that they justly claim a large share of our attention. But I conceive that this is solely the province of Reason, and not of that which is usually termed Taste. A stranger passes by the London University: his first glance at the edifice would, I think, afford him much pleasure. A portico of ten Corinthian columns, elevated on a lofty basement, and crowned by a good proportioned dome, must command attention; and I think that, with most unbiassed observers, it would be a pleasurable attention: but, upon farther inspection, our observer perceives that the sole use of this portico is to shelter one doorway in the centre. This will cast a shade over his former satisfaction. It seems as though the portico and the entrance were not made for one another; it seems an application of a noble object to a purpose unworthy of it: as though we should yoke an elephant to a pony-carriage. Here the judgment is shocked, and that in no small degree; and we cannot divest ourselves of its influence, when judging of the structure as a work of art. But nothing of this kind can be said in reference to blank windows, and other objects of a similar nature. In the former case, there is a large assem-

blage of objects, evidently intended to answer a certain end; and we cannot help perceiving that the means used are not commensurate with the end proposed: while the sole aim of blank windows is to please the eye. It is, I believe, owing to this latter distinction that we are not molested by the whisperings of the judgment, when admiring such objects as the spires of Salisbury and Strasburg. They are utterly useless; but they do not pretend to be otherwise.

I might extend these observations to works on literature which come within the cognizance of Taste; but I fear that I have already too far prolonged my remarks, and will hastily bring them to a close.

I entirely coincide with the spirit of the observations made by your correspondent Candidus, in the last Number of the *Architectural Magazine*, although I cannot agree with him on the comparative merits of the London University and the National Gallery. He will find some remarks in the *Athenæum* of the 31st of May, 1834, relative to the propylæa in the new building, which he appears rather inclined to censure. — *Y. Z. London, Oct.* 9. 1834.

We leave the above criticism to produce its own effect on the minds of our readers. It is temperate; and that appears to us its principal merit. There is not a line in it which can be considered as a defence or justification of the use of blank windows in an elevation having no real windows. In such an elevation, the blank windows must either be introduced as ornaments, or for some useful purpose; but our critic offers no defence of them on either of these grounds. He supposes that we condemn blank windows simply because they are useless; and then he combats the idea which he has conjured up. If blank windows can be shown to be beautiful in themselves, that circumstance alone might justify their introduction, even in an elevation where there were no real windows. But he has not shown them to be beautiful at all; and we contend that, so far from being beautiful in themselves, they always convey the idea of imperfection or defect; and that they are only passable where they form part of a system of real windows. Even when they do form part of such a system, we think that, in many cases, it would be better to avoid them. The guide to their introduction or omission should be the necessity or non-necessity of maintaining the appearance of regularity and uniformity; because, in some elevations (for example, those of common street-houses), regularity and uniformity (as we have shown in p. 323.) are almost the only kinds of architectural beauty which are produced. In buildings of a higher character, such as the Bank of England and the National Gallery, the kind of beauty aimed at should be of a very superior description; and, so far from requiring blank windows to maintain the appearance of regularity and uniformity, these qualities are maintained by nobler parts of the edifice: and blank windows detract from the effect of the elevation, considered as a whole, by the vulgar or commonplace associations connected with them. In short, we think our maxim on the subject of blank windows unshaken by the objections of our correspondent: but we shall be glad to hear all that can be said against it; because it is mainly by discussions of this kind that the *Architectural Magazine* can be of service, either to young architects or to general readers. It is a fact, that, we believe, most people will assent to from their own experience, that instruction is much more effectually communicated by the correction of errors, than by the most perfect precepts. — *Cond.*

Ventilation by Mr. Milne and Mr. Picton. (p. 64. and p. 230.) — Having no copy of my answer [p. 279.] to the objections made by Mr. Dymond [p. 213.] to my equalising ventilator, I am not sure whether the statements of Mr. Picton are already answered: nevertheless, I shall say a few words in reply. Mr. Picton remarks (p. 230.) that my invention depends for "its efficacy entirely on the excess of temperature of the air in the room over that without." By reading my paper with attention, it will be seen that the use of my apparatus is to prevent excessive draught, caused by the variable force and direction of the wind, &c.; and that its action does not depend upon temperature, farther than that the damper permits an equal flow of air under all possible circum-

stances. In summer, my ventilator opens of its own accord; and, in winter, shuts itself just so far as to admit the same flow of air in both seasons. Mr. Picton continues:— "Should the difference be very slight, or the excess be the other way, it would become wholly inoperative." Why would it? I cannot conceive the possibility of the "excess" of temperature being ever the "other way;" that is, greater without than within a human dwelling. Mr. Picton next observes, that, "were the temperature, within and without the house, equal, there would be no ventilation whatever." That, however, is an evil which is neither caused nor prevented by my ventilator. From what has been stated, I hope it will be understood that, even admitting it were evident that "it is quite possible for the air in a room to become unfit for respiration, with little or no increase of temperature," the equalising ventilator would not hinder the application of the proper remedy, rarefaction. For hospitals, and other public rooms, I did not propose to expose the "delicate balance" and "pivots of the louvre boards" of the ventilator "to the action" either "of a damp atmosphere or of high winds:" on the contrary, they are placed within the house, at the entrance of chimneys, or tubes, in which the rarefying process is directed to be made. "The obvious tendency of the apparatus is," not "to equalise the circulation when the difference of temperature is greater, and to diminish it when the difference is small." On the contrary, as regards the statement of Mr. Picton, it prevents a greater flow of air when the difference of heat is great; and permits an escape to the utmost extent possible when the difference is small; and gives complete control over its exit, from whatever cause it may be accelerated. Hence, as already shown, it also prevents "an enormous waste of heat in winter," without requiring the "equilibrium" of the damper to be adjusted by hand; and maintains its self-equalising properties, notwithstanding all that has been urged against it.

I have twice constructed this ventilator, and found its performance equal to my expectation: and I hereby offer to furnish it, at a very moderate charge; and to combine it with a mode of warming, ventilating, and preventing smoke, in any room or suite of apartments, in a more effectual and economical way than is, at this time, in general use; and to forfeit my remuneration if I fail.

I consider Mr. Picton's ventilating flues very good; but such are only advisable when the roof is exposed to the sun, and can be rationally expected to perform only when he is visible. It is, however, when the weather is close and sultry, and the sky cloudy, that ventilation is most wanted, and most difficult to produce, and at such a time such flues could not be of much use. Indeed, they frequently permit the entrance of cold air, instead of drawing off that which has become unfit for respiration. A very good illustration of the above observation will be found in my description of the Assembly Rooms and Theatre Royal. [This will appear in the Number for January.] But much depends upon circumstances; and I am far from doubting the efficacy of Mr. Picton's air-flues in many situations. — *John Milne. Edinburgh, August*, 1834.

The Plan for Curing Smoky Chimneys (p. 233.) which your correspondent Mr. Saul describes, and states to be the invention of Mr. Hall of Lancaster, although very simple and valuable, is by no means novel or original; for in the *Builder's Companion*, London, 8vo, 1831, by Mr. D. Boyers, surveyor, a precisely similar method is given; and I think it will be but justice to Mr. Boyers if you mention it in your Magazine. — *Amicus. London, Sept.* 16. 1834.

New Cock for Boilers, to admit and emit equal Quantities of cold and hot Water in equal Times. (p. 240.) — In order to the perfect action of this cock, the areas of the cold and hot water passages must be inversely as the altitudes of their supplying heads; and the areas being constant, if the altitude of the supplying head varies, there will be either too great or too small an expense of water in proportion to the supply: so that, after a certain number of openings of the cock, the boiler will either be quite full of water or quite empty. If I understand it, this appears to be the right view of the matter; and, if so, the contrivance is one needing far too nice an adjustment ever to be generally

useful. I think, also, that the pin of the cock, by being exposed in one place to hot water and in another to cold, would not remain long tight. It would be easy to have the supplying head of water equal in altitude to that in the boiler; in which case, the areas of both passages would be equal, provided the water in both was of the same temperature, and that the conducting pipes were both of equal length: but, as they could not be so, two correctors would be necessary, one for temperature and the other for friction. All this it would be next to impossible to have done practically; moreover, sediment would deposit in the hot tube, and not in the cold one: so that, even if right at first, they would soon become wrong. — *Robert Mallet. Dublin, Aug.*, 1834.

Art. V. *Queries and Answers.*

New Exchange, Glasgow. — A correspondent enquires whether we can give any account of the new Exchange at Glasgow, which is reported to be ar superior to any other structure of the kind in this country. We should feel obliged by the communication of some particulars respecting so important a structure. — *L.*

Towel Stands. — In reply to your querist (p. 96.), I would suggest, as in my opinion preferable to what he proposes, two brackets similar to *fig.* 206.,

206

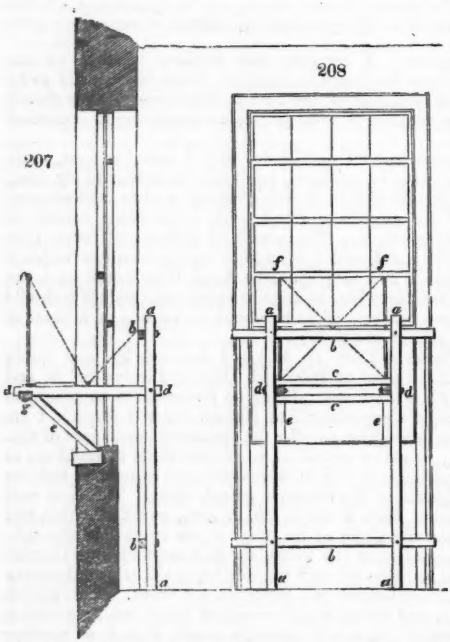
which may be of cast iron or of wood, carved or plain, and screwed to the side of the wash-hand stand, with a bar either turned or plain fixed between them. This would be ornamental rather than otherwise to the stand, and it would not be inconvenient to place the towel upon: if two sets could be fixed, they would have the appearance of handles, where an angular stand was used: if it should be more convenient, these brackets might be affixed to the side of a chest of drawers, or against any part of the wall. — *Z.*

The River Wall at Woolwich Dock. (p. 42.) — I was led, by your query respecting this wall, to make a call at Woolwich Dockyard to inspect it, and I was much gratified with what I saw. Being so fortunate as to meet, on the wharf, with Mr. Ranger's superintendent (whose name I forget), I am enabled by his intelligent description to offer the following particulars of this truly national invention; or rather revival of an ancient mode of building, as many of our beautiful ecclesiastical as well as domestic and castellated remains bear a very close resemblance to Mr. Ranger's patent stone. The river wall at Woolwich, my informant says, is about 250 ft. long, and 28 ft. high, and breasting back 4 ft. from the plane of its base: it was erected in the early part of the year, and carried on at low water, the men working until the tide flowed and obliged them to leave off until the tide fell again, which, however my informant asserted, consolidated and hardened the work. The wall is now finished (June 24.), and makes a most excellent wharf wall, resembling granite, with bold horizontal joints, and perfectly sound, though no expense was incurred by piling for foundation, or by any other expensive measures usual on these works. The customary work of the wharf was not retarded during its erection, except at the point where the work was then carrying on. Upon the whole, I think it worth a journey to the amateur as well as the civil engineer, in whose department it must become a most important invention. I was also obliged by a description of a new dock in progress, which is building of the same material, but which I had not time to inspect. As soon as it is finished, which will be shortly, I shall take a scientific friend with me, and, if it appear worth a place in your valuable work, I shall endeavour to send you a more scientific description of it. I am informed that Mr. Ranger has erected a beautiful building, as a specimen of his material, at Sir H. Taylor's, in the Regent's Park, in the early English style; also a guard-house in the Birdcage Walk, in the Grecian style, and another structure, showing a great alteration in street architecture, opposite the National Gallery, Pall-Mall.

These specimens I have not seen, but perhaps some of your numerous readers may oblige us with a description of them. — *Charles Manners. Woolwich Common, July* 14. 1834.

Which is the best Method of keeping a Dairy cool, or could not a draught be created in some way through it? That which I particularly have in view stands above ground, detached from any other building, and is about 10 ft. square; but, although it has a flat roof forming a cistern to contain water, it acquires such a degree of warmth, as to render it unfit for the purposes for which it was intended: perhaps some of my fellow-readers can assist me on the subject. — *Sam. Ap-Evan. Neath, Glamorganshire, Sept.* 22. 1834.

An Apparatus for cleaning the Outsides of lofty Windows is thus described by our correspondent G. B. W.: — I have supposed the window to be 8 ft. high, and 3 ft. 6 in. from the floor. *Fig.* 207. is a section, and *fig.* 208. the internal elevation of the window, &c. *a a*, two stout standards, about 6 ft. 6 in. high, with two cross pieces *b b* securely screwed to them, and going across the window opening, to keep them firm, and two pieces *c c* notched into them: *d d* are two bearers, supported at the one end by the struts *e e*, which abut against the wood and stone sills, and at the other by the pieces *c c*; and screwed to the standards: *f f* are light standards of iron let into the ends of the bearers and the cross piece *g*, and screwed to them by nuts. A rope might go across the tops of these standards, and another crosswise, as shown by the dotted lines in *fig.* 208. For fear of their giving way outwards, a rope might be passed from their tops, through a ring on the top of the bearers, to the cross piece *b*, as shown in *fig.* 207. I have made this platform to project 2 ft. from the line of the sash frame; and the space afforded between the iron standard and the sash would be about 1 ft. 8 in., which I should think enough for a person to stand upon; but that, of course, is optional. A piece of 1 in. deal plank (11 in. wide) laid across the bearers, and, perhaps, screwed down to them, would complete the apparatus. The struts should be either tied or screwed to the bearers, and a cross piece put between them at the lower end to keep them in their places. I should think this would answer the purpose required. It might be easily taken to pieces or put up; and the expense of the materials would be very trifling. — *G. B. W. London, Sept.* 19. 1834.



GLOSSARIAL INDEX.

ABACUS, 109; the upper member of the capital of a column.
Acroter, 193; a pedestal on the summit of a column for supporting a statue.
Acroteria, 159; small pedestals placed on the apex and other extremities of a pediment originally intended to support statues.
Antæ, 319; pilasters attached to a wall.
Antefixæ, 24; see *g*, in fig. 10.
Artesian wells, 210; wells formed by boring, and called Artesian because the practice originated at Artois.
Ashlar work, 6; rough stone laid in irregular courses.
Astragal, 109; a fillet moulding with a rounded edge.
Batten floors, 168; floors laid with narrow boards 1½ in. thick.
Battened walls, see p. 171.
Beveled, 125; sloped off.
Blasting rocks, 93; splitting them into fragments by means of gunpowder.
Bond stones, 194; stones running through a wall at right angles with its face, in order to bind it together.
Borrshane, 372; a basket made of palm leaves, used by the Egyptians in brickmaking.
Boxed in, 74; filled up compactly.
Brick nogging, 37; a framework of timber filled in with brick.
Butt hinges, 83; hinges, which, when expanded, form a square.
Calorifère, 176; apparatus for heating by hot water, described at length, p. 359.
Cap of a chimney, 64: the upper and projecting part of the shaft.
Capotum, 269; a kind of Hindú torus moulding, with an ornament resembling a pigeon's head at its termination.
Castrametation, 148; camp-making, or the science of forming camps.
Cavetto, 111; a species of moulding, see fig. 45., p. 110.
Cella, 265; the part enclosed by walls, of a Grecian temple.
Check-plate, 126; the piece of wood in the lintel of a doorway, against which the door shuts.
Chevron mouldings, 292; indented mouldings in the Anglo-Norman style.
Chimney shafts, 118; the part of a chimney which rises above the roof.
Chunam, 315; an Indian cement or plaster.
Cincture, 32; a ring or fillet serving to divide the shaft of a column from its capital and base.
Clamps, 178; a quantity of bricks piled up for burning, but not enclosed in a kiln.
Clere-story, 290; the centre in a church, when it rises above the two aisles.
Clere-story windows, 331; windows in the clere-story of a church.
Clinker bricks, 238; small bricks burnt very hard.
Coins, 210; corners.
Concrete, 35; a mixture of clean gravel and quicklime.
Congee, 112; a species of moulding, see fig. 51.
Corbel heads, 345; the extremities of corbel stones, often carved.
Corbeled, 82; one stone projecting over another to support a superincumbent stone.
Corona, 109; the crowning member of the entablature, see *e*, in fig. 10.
Corrugated, 72; wavy or fluted.
Crabs, 198; machines for being attached to and raising heavy weights.
Crowsteps, 6; the coping stones of a gable rising one above another, like steps.
Crypt, 96; a vault.
Cumuda, 268; a kind of Hindú circular moulding.
Curbed, 39; contracted towards the ceiling by being carried up into the roof.
Cusps, 345; points formed in the upper corners of the window by uniting the two curves.
Cyclopian walls, 81; walls built with landstones heaped on each other without mortar.
Cyma recta, a species of moulding, see fig. 46. p. 110.
Cyma reversa, 111; a species of moulding, see fig. 50.
Cyma talon, 111; a species of moulding, see fig. 47.
Dado, 156; the flat side of a pedestal between the plinth and the cornice; applied also to the space between the skirting and the chairs' back moulding in rooms.
Deals, 83; deal boards sawn to a proper thickness for use.
Dormer windows, 184; windows in a roof.
Dove-tailed groove and tenon, 80; two pieces of wood joined by one piece being cut into a particular shape, and the other cut out or hollowed out to receive it.
Doweled floors, 168; explained at length in p. 319.
Dressings to windows, 297; mouldings, or rather architectural lines and forms surrounding windows, so as to prevent them from being "mere holes in a wall."
Echinus, 111; a species of moulding, see fig. 49.
Engaged columns, 117; columns attached to a wall, and projecting from it half or three quarters of their diameters.
Entablature, 115; the horizontal mass placed on Grecian columns: it consists of three parts the architrave, the frieze, and the cornice.
Epistylium, 24; architrave.
Façade, the principal face, front, or elevation of any building.
Fascia, 112; the face or principal member of the architrave.
Feuars, 113; persons renting land for building on in Scotland, on very long leases, generally of 999 years.
Fillet, 109; a small square or flat moulding.
Finial, 238; a pointed ornament terminating a gable.
Fire bricks, 74; bricks made of a particular kind of clay not easily fused by fire.
Flanches, 41; projecting edges in iron work, generally curved, for the purpose of uniting and strengthening the parts to which they are applied.
Flashings, or *Flushings*, *of lead*, 36; strips of lead covering joints.
Fly wire, 306; wirecloth, or *toile métallique*, for putting in windows to admit the air, while it excludes the flies.
Folding floors, see an explanation at length, 319.
Footings, 209; the lower courses of a foundation.
Frets and *guilloches*, 256; frets are ornaments composed of a series of small straight fillets, and guilloches of a series of curved fillets.
Frieze, 109; see *b*, in fig. 10. p. 25.
Frustum of a pyramid, 192; the lower part, the upper having been cut off horizontally.
Geometrical drawing, 215; a drawing to a scale, as opposed to one in perspective.
Girders, 177; the principal beams for supporting the binding joists.
Greek cross, 133; a rectangular cross, the limbs of which are all equal.
Groined roof, 342; groins are lines formed at the intersection of two arches which cross each other.
Haunches of an arch, 140; the part behind the springing of the arch.
Headers, 125; bricks placed so as to have their heads to the surface of the wall.
Intercolumniation, 138; the distance between the columns of any building.

GENERAL INDEX.

END OF THE FIRST VOLUME.

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